RAUCH
wir nehmen's genau

INSTRUCTION MANUAL

Please read carefully before using the machine.

Keep for future reference.

This instruction manual/assembly instruction is to be considered as part of the machine. Suppliers of new and second-hand machines are required to document in writing that the instruction manual/assembly instruction was delivered with the machine and handed over to the customer.

AXENT

Original instructions

5901645-d-en-1017

Preface

Dear customer,

By purchasing the **AXENT 100.1** large area spreader, you have shown confidence in our product. Thank you very much! You have purchased a powerful and reliable machine. We would like to justify this confidence.

However, in case of unexpected problems: our customer service is always there for you.

Please read this operator's manual carefully before commissioning the large area spreader and follow the advice given.

This operator's manual gives detailed instructions on the operation of the machine, as well as valuable information on assembly, maintenance, and care.

This manual may also describe equipment that is not included in your machine.

Please note that damage caused by incorrect operation or improper use is not **covered by warranty claims**.

NOTE

Please enter the type and serial number as well as the year of construction of your machine here.

You can find this information on the nameplate and/or the frame.

Please state this information when ordering spare parts or accessories, and in case of complaints.

Type:	Serial number:	Year of manufacture:

Technical improvements

We are continuously improving our products. Therefore, we reserve the right to make any improvements and changes to our machine that we consider necessary without notice. This constitutes no obligation to make such improvements or changes on machines that have already been sold.

We will be pleased to answer any other questions that you might have.

Yours sincerely

RAUCH

Landmaschinenfabrik GmbH

1 Intended use and declaration of conformity

1.1 Intended use

The **AXENT 100.1** large area spreader may only be used in accordance with the information given in this operator's manual.

The **AXENT 100.1** large area spreader is constructed in accordance with their intended use and may be exclusively used for the points listed below:

- The **AXENT 100.1** large area spreader is equipped with a RAUCH fertiliser spreading unit for spreading of dry, granular and crystalline fertilisers, seeds and slug pellets.
- The **AXENT 100.1** large area spreader is equipped with a spreading master lime spreading unit for granular and pulverized lime.

In the following chapters, the large area spreader is referred to as "**machine**".

Any use beyond these specifications is considered as contrary to the intended use. The manufacturer shall not assume any liability for any damages resulting in this respect. The risk is solely carried by the operator.

The intended use also comprises the compliance with the operating, maintenance and repair conditions prescribed by the manufacturer. For replacement purposes, only original spare parts by the manufacturer may be used.

The machine may only be used, maintained and repaired by people who are familiar with the characteristics of the machine and who are aware of the risks.

The instructions regarding the operation, service and safe handling of the machine as described in this operator's manual and declared by the manufacturer in the form of warning signs and symbols on the machine must be strictly followed during operation.

Moreover, the relevant accident prevention regulations and other generally recognised safety, occupational health, and road traffic regulations must be strictly observed when using the machine.

Unauthorized modifications to the machine are not permitted. Such modifications exclude any liability of the manufacturer for any resulting damages.

Foreseeable misuse

The manufacturer provides warning notes and signs on the **AXENT 100.1** large area spreader relating to foreseeable misuse. These warnings and warning symbols must always be observed. This way, application of the AXENT 100.1 large area spreader against the intentions of the operator's manual is prevented.

1.2 EC declaration of conformity

In accordance with 2006/42/EC, Appendix II, No. 1 A

RAUCH - Landmaschinenfabrik GmbH,
Landstrasse 14, 76547 Sinzheim, Germany

We hereby declare that the product:
Large area spreader AXENT 100.1

complies with all relevant regulations of the EC Machinery Directive 2006/42/EC.

Technical documents compiled by:
RAUCH - Design management
Landstrasse 14, 76547 Sinzheim, Germany

(Norbert Rauch - Managing Director)

2 User instructions

2.1 About this operator’s manual

This operator’s manual is an **integral part** of the machine.

The operator’s manual contains important information for a **safe**, **appropriate** and economic **use** and **maintenance** of the machine. Adherence to this operator’s manual helps to **avoid risks**, to reduce repair costs and downtime, and to increase the machine's reliability and service life.

The complete documentation, comprising this operator’s manual and any other documents provided, must be kept in an easily accessible location close to where the machine is used (e.g. in the tractor).

If the machine is sold, the operator’s manual must also be passed to the new owner.

The operator’s manual is intended for the operator of the machine and anyone involved in operating and maintaining it. It must be read, understood, and applied by all persons entrusted with the following work on the machine:

- Operation,
- Maintenance and cleaning,
- Repairing faults.

In particular, the following is to be observed:

- The chapter on safety,
- The warning instructions in the text of the individual chapters.

The **operator’s manual does not replace** your **own responsibility** as the operator and operating personnel of the control unit.

2.2 Structure of the operator’s manual

The operator's manual is divided into six key areas in terms of content:

- User instructions
- Safety instructions
- Machine data
- Instructions on the operation of the machine,
  - Transportation
  - Commissioning
  - Spreading operation
- Instructions on detecting and rectifying faults
- Maintenance and repair instructions

2.3 Notes on text descriptions

2.3.1 Instructions and procedures

Steps that the operator must carry out are shown as a numbered list.

1. Instruction for action step 1
2. Instruction for action step 2

Instructions involving only one step are not numbered. The same applies for action steps that do not have a specific sequence.

A bullet is placed in front of these instructions:

- Handling instruction

2.3.2 Listings

Listings without a specific sequence are shown with bullet points (level 1) and dashes (level 2):

- Property A
  - Point A
  - Point B
- Property B

2.3.3 References

References to other text passages in the document are indicated with section number, headline text and page number:

- **Example**: See also Chapter 3: Safety, page 5.

References to other documents are indicated as note or instruction without exact chapter or page number:

- **Example**: Please also observe the instructions contained in the manual for the universal drive shaft.

3 Safety

3.1 General information

The chapter **Safety** contains basic warnings as well as working and traffic safety instructions for the usage of the towed machine.

The adherence to the instructions in this chapter is a prerequisite for the safe handling and trouble-free operation of the machine.

Furthermore, the other chapters of this operator's manual contain further warning notes which need to be accurately adhered to, as well. The warning instructions are given before the text for the relevant actions.

For further information, refer to the operator's manual of the attached fertilizer spreader. Also refer to this operator's manual prior to commissioning.

Warning notes on the supplier components can be found in the respective supplier documentation. These warning instructions must also be observed.

3.2 Significance of warnings

The warning instructions in this manual have been structured according to the degree of danger and the probability of their occurrence.

Danger signs and symbols inform the user about other construction-related and unavoidable residual risks that may be encountered when operating the machine. The warning notes used are structured as follows:

	Signal word
Symbol	Explanation

Example

⚠ DANGER	
	**Risk to life if warning is not observed** Description of the danger and possible consequences. Ignoring these warnings will result in very serious or even fatal injury. ▶ Measures to prevent the danger.

Warning severity level

The degree of danger is indicated by the signal word. The levels are classified as follows:

⚠ DANGER

Type and source of danger

This warning warns of a danger posing an immediate threat to the health and life of persons.

Ignoring these warnings will result in very serious or even fatal injury.

- ▶ Always observe the measures described to prevent this danger.

⚠ WARNING

Type and source of danger

This warning warns of a possible dangerous situation for the health of persons.

Ignoring these warnings will result in very serious injury.

- ▶ Always observe the measures described to prevent this danger.

⚠ CAUTION

Type and source of danger

This warning warns of a potentially dangerous situation for personal health or of material and environmental damage.

Ignoring this warning can result in injuries and damage to the product or the general area.

- ▶ Always observe the measures described to prevent this danger.

NOTICE

General information containing application tips and particularly useful information, but which constitutes neither warnings nor hazards.

3.3 General information on the safety of the machine

The machine is constructed in accordance with the state of the art and the recognized technical regulations. However, its usage and maintenance may cause danger to the health and life of the operator or third parties and/or the impairment of the machine and other material assets.

For this reason, the machine may only be operated

- when it is in a proper and roadworthy condition,
- in awareness of safety and dangers.

Therefore, it is imperative that you have read and understood the contents of the operator’s manual. You must be familiar with the applicable accident protection regulations and the generally accepted regulations for safety, occupational health, and road traffic, and apply these rules as required.

3.4 Instructions for the operator

It is the operator's responsibility that the machine is used as intended.

3.4.1 Personnel qualifications

Before starting any work on or with the machine, all persons who are involved in operation, maintenance or repair must have read and understood this operator’s manual.

- The machine may only be operated by instructed personnel authorized by the owner.
- Members of staff who are still in training or subject to coaching/instructions may only work on the machine when an experienced person is present.
- Only qualified maintenance staff may implement maintenance and service work.

3.4.2 Instruction

Distribution partners, works representatives or employees of RAUCH will instruct the operator regarding the operation and maintenance of the machine.

The owner must ensure that newly recruited operating and maintenance personnel are instructed to the same extent and with the same care with regard to the operation and repair of the machine in compliance with this operator’s manual.

3.4.3 Accident prevention

Safety and accident prevention regulations are governed by law in every country. The operator of the machine shall be responsible for the compliance with these regulations applicable in the country of use.

The following instructions must also be observed:

- Never let the machine run without supervision.
- Do not ride on the machine while it is working or being transported (**no passengers**).
- Do **not** use machine parts as climbing aids.
- Always wear tight fitting clothes. Do not wear work clothes with belts, loose threads or other items that could snag.
- Follow the manufacturer's warning notes when handling chemicals. You may have to wear personal protective equipment (PPE).

3.5 Information on operational safety

To avoid dangerous situations, only use the machine in a reliable condition.

3.5.1 Unhitching and parking the machine

Only park the machine on level, solid ground.

Before uncoupling the machine, ensure that it is secured against tilting and rolling away.

- Has the parking brake been applied?
- Is the support stand folded down?
- Are the wheels secured by wheel chocks?

Further information can be found in chapter 7.7: Parking and decoupling the large area spreader, page 107

3.5.2 Filling the machine

- Connect the machine to the tractor before filling it.
- Only fill the machine when the tractor is at a standstill. Remove the ignition key in order to ensure that the motor cannot be started.
- Avoid one-sided loading of the axle due to uneven loading of the machine.
- Use suitable auxiliary equipment for filling the machine (e.g. front-end loader, auger).
- Please observe the admissible overall weight. Check the filling level in the hopper.
- AXIS-PowerPack fertiliser spreading unit only: Only fill the machine when the feeder mesh in the AXENT hopper is installed. This will prevent faults during spreading and damage caused by spreading material lumps or other foreign objects.

3.5.3 Checks before start-up

Check the operating safety of the machine before the first and every subsequent start-up.

- Is all safety equipment at the machine installed and functioning?
- Are all fasteners and load-bearing connections tight and in proper condition?
- Are all locks firmly closed?
- Is the hazard zone of the machine clear of persons?
- Is the universal drive shaft guard in good condition?

3.5.4 Hazard zone

NOTICE

For further information on the rear view camera, refer to 6.11: Camera for rear view monitoring, page 77

Ejected spreading material may lead to severe injury (e. g. to eyes).

When persons are present between the tractor and the machine, there is a great hazard caused by the tractor rolling away or by machine movements which may have fatal consequences.

The following figure shows the hazard zones of the machine.

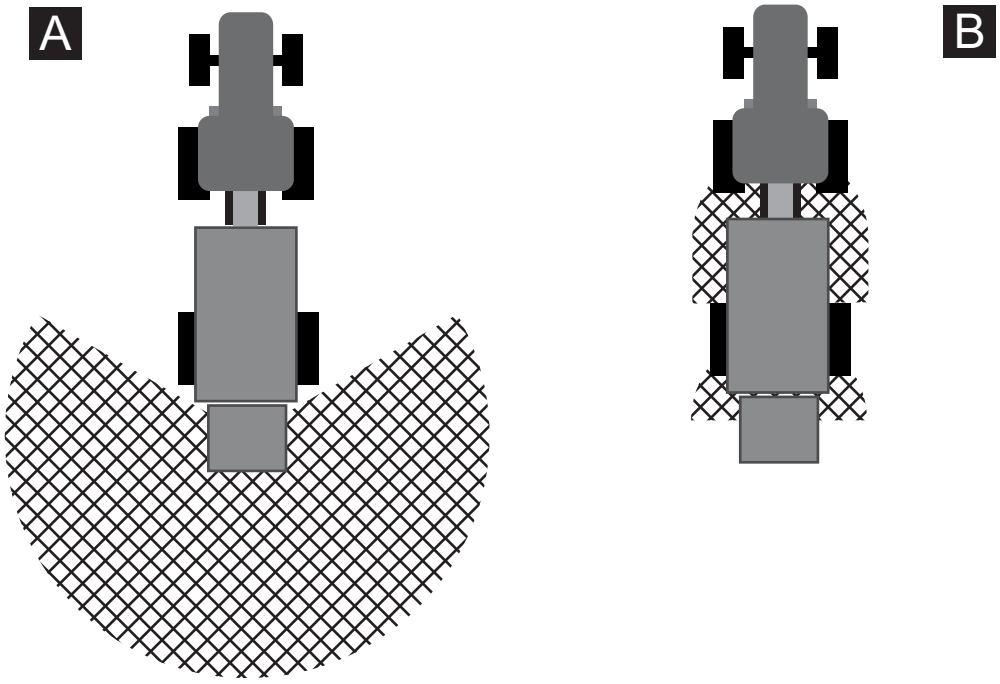


Figure 3.1: Hazard zones around attachment units

[A] Hazard zone in spreading operation
[B] Hazard zone when coupling/decoupling the machine and the spreading unit

- For this reason, ensure that nobody is present in the spreading range [A] of the machine.
- Immediately stop the machine and the tractor if persons are present in the hazard zone of the machine.
- When coupling/decoupling the machine at the tractor or attaching/detaching the spreading unit, make sure that no one is present in the hazard zones [B].

3.5.5 Operation

- If the machine malfunctions, stop the machine immediately and secure it. Have the fault repaired immediately by qualified technicians.
- Never climb onto the machine while the spreader unit is running.
- Rotating machine components may cause serious injury. Make sure that body parts or clothing never come close to rotating components.
- Do not deposit any parts (such as screws, nuts) in the hopper.
- Ejected spreading material may cause severe injury (e.g. of the eyes). For this reason, ensure that nobody is present in the overload range of the machine.
- Never climb onto the machine or the tractor when it is situated beneath high-voltage electrical power lines.
- Do not open or close the hopper cover when the machine is situated under high-voltage electrical power lines.

3.5.6 Wheels and brakes

Due to the high overall weight and the terrain to be driven on, the chassis of the towed machine is subject to high stress. In order to ensure the operational safety, the following points have to be ensured in particular:

- Only use wheels and tyres which meet the technical requirements stipulated by the manufacturer.
- Wheels must not be bent or have inadmissible bumps.
- Check the wheels at their sides on the inside and outside. In case of damage (bumps, scratches), replace them immediately.
- Check the inflation pressure and the functionality of the brake before every drive.
- Have the brake pads changed in time. Only use brake pads which meet the technical requirements stipulated by the manufacturer.
- To prevent contamination of the wheel bearings, they must always be covered by dust covers.
- Please also respect the admissible maximum load of the wheels (refer to entry in the type report)
- **Do not use the tractor joystick for braking** This way, trailers with pneumatic brakes cannot be stopped.

3.6 Use of fertiliser and lime

Improper selection or use of fertiliser and lime may cause serious injury or environmental damage.

- When selecting the fertiliser or lime, inform yourself of its effects on humans, the environment and the machine.
- Always follow the instructions of the fertiliser or lime manufacturer.

3.7 Hydraulic system

The hydraulic system is under high pressure.

Fluid escaping under high pressure can cause serious injuries and environmental damage. The following instructions must be observed to prevent danger:

- Always operate the machine below the permissible maximum operating pressure.
- Depressurise the hydraulic system **before** any **maintenance work**. Turn the tractor motor off. Secure it against reactivation.
- When looking for leaks, wear **protective glasses** and **protective gloves at all times**.
- In the case of injury in connection with hydraulic oil, **consult a physician immediately** as severe infections may occur otherwise.
- When connecting the hydraulic hoses to the tractor, ensure that the hydraulic system is **depressurised,** both on the tractor and the machine side.
- Attach the hydraulic hoses of the tractor and the spreader hydraulic systems only with the prescribed connections.
- Prevent any contamination of the hydraulic circuit. Always suspend the couplings in the brackets provided. Use the dust caps. Clean the connections before joining them.
- Regularly check the hydraulic components and hydraulic hose lines for mechanical defects, e.g. cuts and abrasions, contusions, bends, tears, porosity etc.
- Even when stored correctly and used within approved load limits, hoses and hose couplings are subject to a natural ageing process. This limits their storage and service life.

The service life of the hose lines may not exceed 6 years, including a possible storage time of maximally 2 years.

The date of manufacture of the hoses is indicated on the hose coupling in month and year

- Replace hydraulic hoses if damaged or aged.
- Replacement of hydraulic hoses must meet the technical requirements of the equipment manufacturer. In particular, note the different maximum pressure ratings of replacement hoses.

3.8 Maintenance and service

Maintenance and service work involves additional hazards that do not occur during operation of the machine.

- Any maintenance and service work is to be conducted with increased alertness at all times. Work very carefully and with awareness of danger.

3.8.1 Qualifications of maintenance staff

- Setting and repair work at the brake system may only be carried out by specialist workshops or recognized brake services.
- Repair work on tyres and wheels may only be carried out by specialised staff with the suitable mounting tools.
- Welding and work on the electrical and hydraulic systems is to be carried out by qualified technicians only.

3.8.2 Wear parts

- The maintenance and service intervals described in the present operator's manual are to be strictly adhered to at all times.
- Furthermore, the maintenance and service intervals of the supplier components must also be complied with. See the supplier documentation for the relevant intervals.
- Have the condition of the machine and particularly of attached components, safety-relevant plastic components, the hydraulic system and metering elements checked by your specialist dealer after each season.
- Spare parts must at least comply with the technical standards specified by the manufacturer. The technical standards can be guaranteed by using original spare parts, for example.
- Self-locking nuts are designed to be used only once. Always use new self-locking nuts to secure components (e. g. covers).

3.8.3 Maintenance and service work

- Always switch off the tractor motor before any cleaning, maintenance and service work and when troubleshooting. Wait until all rotating parts of the machine have come to a standstill.
- Make sure that **no unauthorised person** can start the machine. Remove the ignition key of the tractor.
- Before any maintenance and service work, disconnect the power supply between tractor and machine.
- Check that the tractor is correctly parked with the towed machine. Park it with empty hopper on level, solid ground and secure it to prevent it from moving.
- Before carrying out any maintenance and service work, de-pressurise the hydraulic system.
- Disconnect the power supply before working on the electrical system.
- Do not clear blockages in the spreader hopper by hand or with the foot: always use a suitable tool.
- Before cleaning the machine with water, steam or other cleaning agents, cover all components that must not get wet (e.g. bearings, electrical connections).
- Regularly check nuts and bolts for their tight seat. Retighten loose connections.
- After having driven the first 5km, check the tightening torque of each wheel nut. See also “Replacing wheels” on page 146.

3.9 Safety in traffic

Driving on public roads with the towed machine without attached spreading unit **is prohibited** (underride protection).

When travelling on public roads and tracks, the tractor with the towed machine and attached spreading unit must comply with the traffic regulations of the country in which it is operating. The owner and driver are responsible for compliance with these regulations.

3.9.1 Checks before driving

The pre-departure check is an important contribution to road safety. Before every trip, check compliance with the operating conditions, traffic safety, and the regulations of the country of use.

- Is the admissible overall weight complied with? Check that the admissible trailer load and bearing load of the trailer unit as well as the admissible axle load are not exceeded.
- Check that the admissible trailer load and bearing load of the trailer unit as well as the admissible axle load, the admissible braking load, the tyre load capacity and the inflation pressure are not exceeded.
- Is the machine attached appropriately?
- Can spreading material be lost while travelling?
  - Check the filling level of the spreading material in the hopper.
  - The pre-metering slides must be closed.
  - Switch off the electronic control unit.
- Check the wheel pressure and the function of the braking system of the machine. Note the permitted axle load and the permitted tyre load capacity.
- Are the hopper cover and the rear cover closed and secured against accidental opening?
- Does the lighting and marking of the machine comply with the regulations of your country with respect to driving on public roads? Make sure that warning signs, reflectors, and auxiliary lights are correctly placed.

3.9.2 Using the machine for transport

Handling, steering, and braking performance of the tractor are affected by the towed machine. For example, an excessive static load of the machine will reduce the weight on the front axle of the tractor and affect the steering.

- Be aware of the changed driving behaviour.
- When driving, always ensure that there is sufficient visibility. If vision is restricted (e.g. when reversing), another person is required to direct the driver.
- Observe the permissible maximum speed.
- Avoid sudden turns when driving uphill or downhill or across a slope. Due to the changed centre of gravity, there is a danger of overturning. Special care is to be particularly applied when driving on uneven, soft ground (e.g. when entering fields, kerbs).
- Passengers are prohibited on the machine during the drive and during operation.
- If required, attach a front weight to your tractor. For further information, please refer to the operator's manual of the tractor.

3.10 Safety equipment at the machine

3.10.1 Position of safety equipment

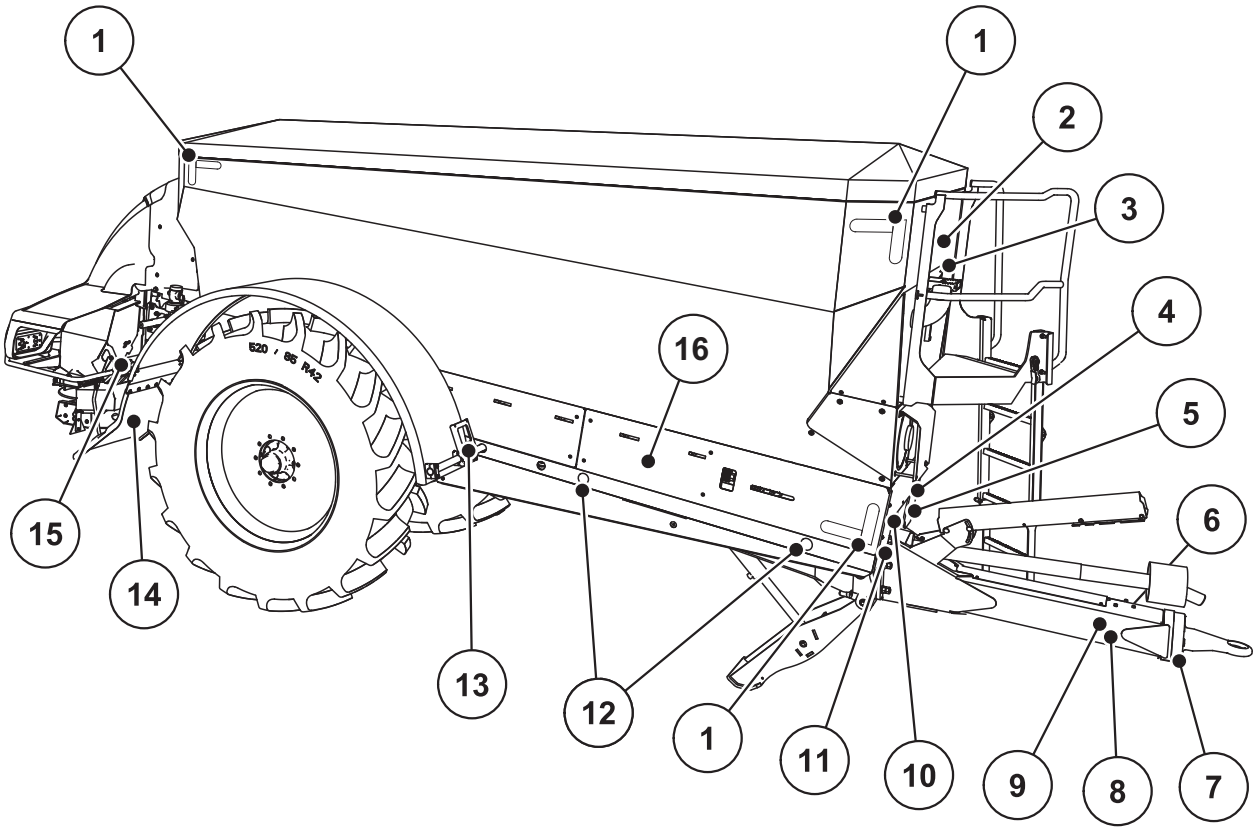


Figure 3.2: Position of safety equipment, warning and instruction notices, side

[1] White contour markings
[2] Warning: passenger transport prohibited
[3] Warning: high-voltage line
[4] Warning: read operator's manual
[5] Warning: ejection of material
[6] Instructions: PTO speed
[7] Trailer unit nameplate
[8] Towing bar nameplate
[9] Towing bar serial number
[10] AXENT 100.1 nameplate
[11] Serial number AXENT 100.1
[12] Yellow side reflectors
[13] Warning: wheel chocks
[14] Mud guard extension
[15] Spreading unit nameplate
[16] Protective sheet for guide rollers and conveyor belt

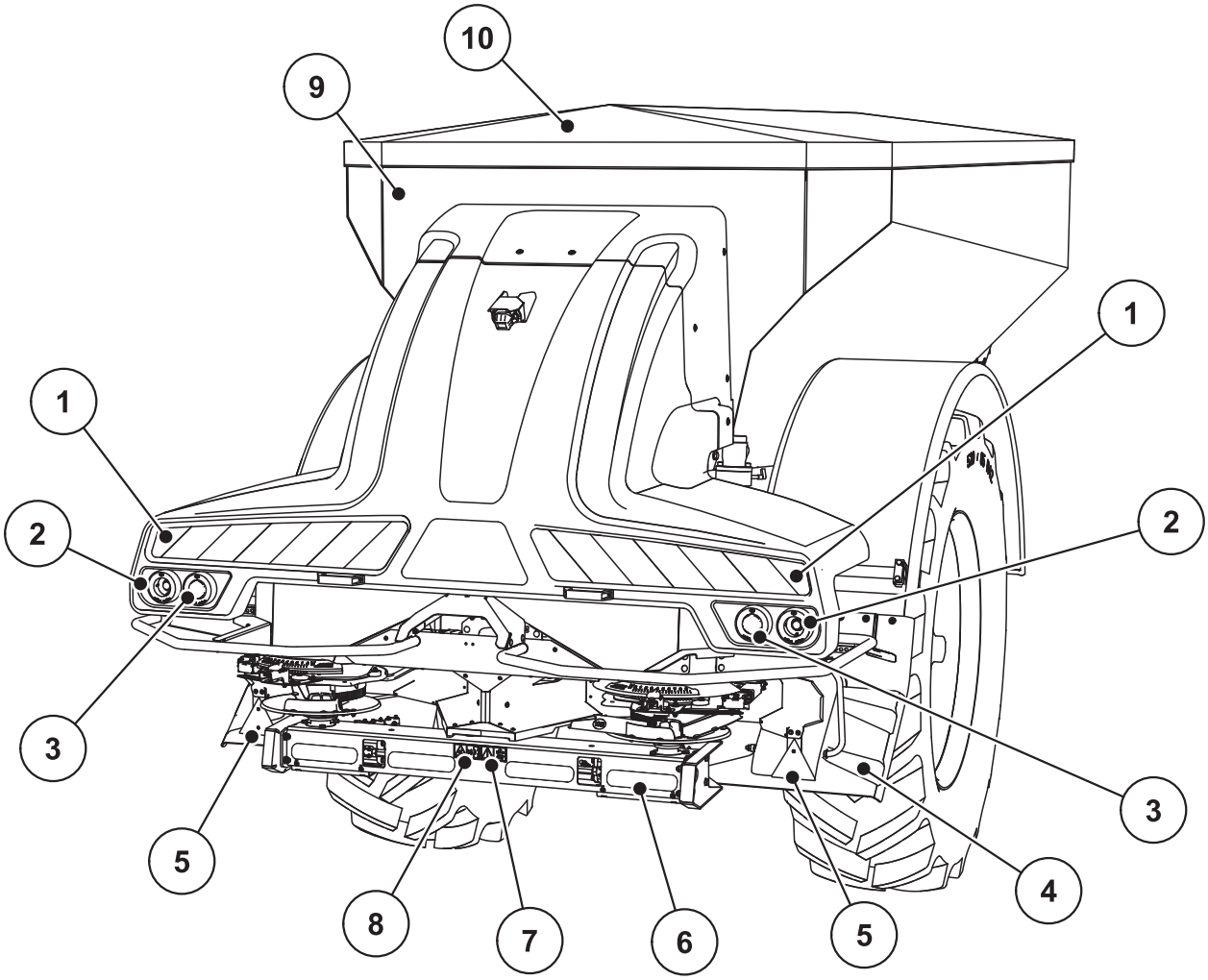


Figure 3.3: Position of safety equipment, warning and instruction notices, rear

[1] Warning sign
[2] Tail light, brake light, indicator
[3] Tail light, brake light, red reflector
[4] Mud guard extension
[5] Red reflectors
[6] Red reflector strips
[7] Warning: moving parts
[8] Warning: remove ignition key
[9] Admissible maximum speed
[10] Hopper cover

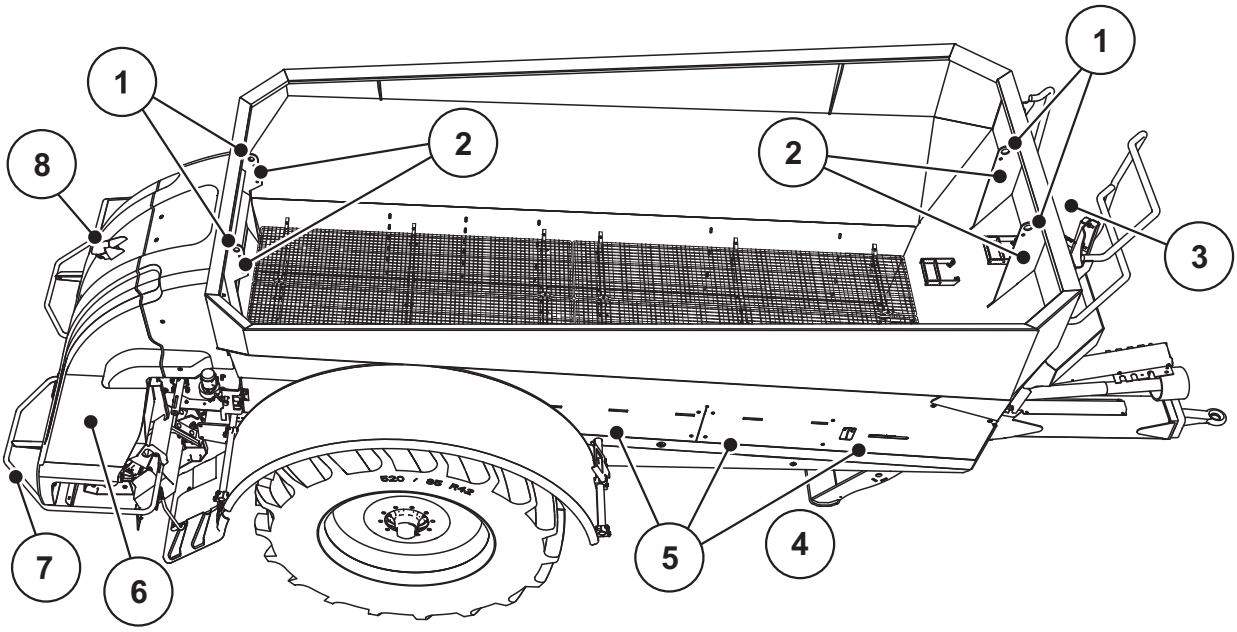
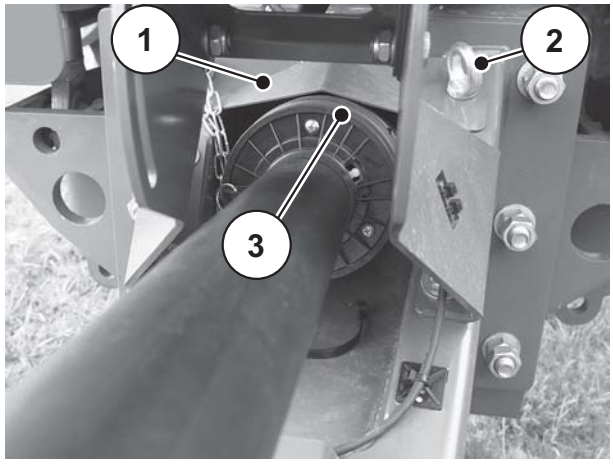


Figure 3.4: Position of safety equipment, warning and instruction notices, top

[1] Eyelets
[2] Instructions: eyelet in hopper
[3] Instructions: cleaning flap
[4] Warning: risk of explosion under hopper (not illustrated)
[5] Warning: moving parts (behind folding side cover)
[6] Rear cover
[7] Deflector bracket
[8] Rear view camera



[1] Protective sheet
[2] Eyelet
[3] Universal drive shaft guard

Figure 3.5: Universal drive shaft guard

3.10.2 Function of safety equipment

The safety equipment is designed to protect your health and life.

- Before working with the machine, ensure that the safety devices are functional.
- Only operate the machine when the safety equipment is functional.

Designation	Function
Universal drive shaft guard	Prevents body parts and clothing from being pulled into the rotating drive shaft.
Wheel chock	Prevents the machine from rolling away
Rear cover	Prevents body parts from being caught and cut off by the comb roller Prevents body parts from being crushed by the pre-metering slides Prevents body parts from being caught by the agitator Contains the lighting system for the rear lighting with warning sign, tail light, brake light, warning indicator and direction indicator
Rear view camera	Supports reversing and prevents accidents due to insufficient view from the tractor cabin
Mud guard extension	Prevents persons from entering between the wheel and the spreading unit. See also "Hazard zone“ on page 10.
Hopper cover	Prevents loss of spreading material through the hopper filling opening during road travel and spreading
Protective cover	Prevents body parts from being cut off by the conveyor belt and caught by the guide rollers.
Deflector bracket	Prevents being grabbed by rotating spreading discs from behind, from the side and from the front.

3.11 Warning and instruction stickers

Various warning and instruction stickers are attached to the machine (for the position at the machine, please refer to figure 3.2 to figure 3.4)

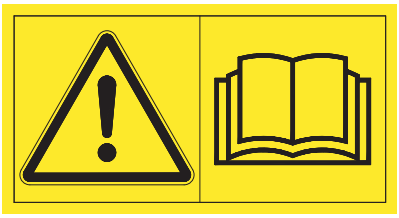
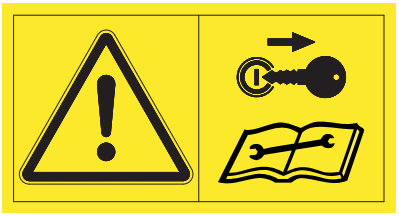
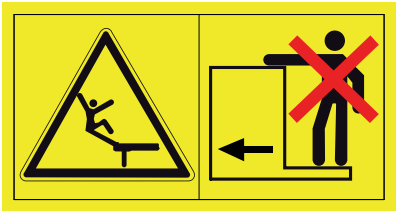
The warning and instruction stickers are components of the machine. They must not be removed or modified. Missing or illegible warning and instruction stickers must be replaced immediately.

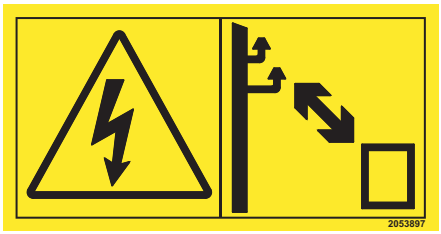
If new components are installed during repairs, the same warning and instruction stickers that were on the original parts must be placed on the new parts.

NOTICE

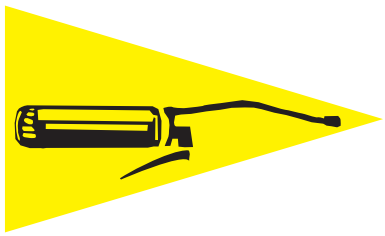
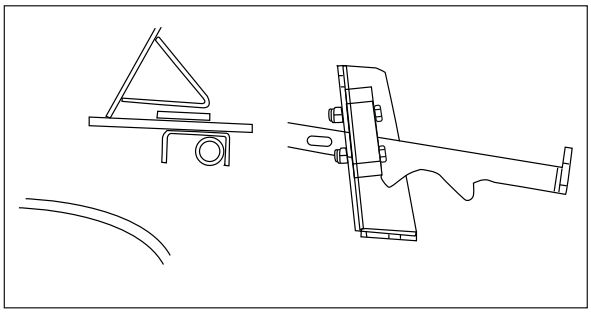
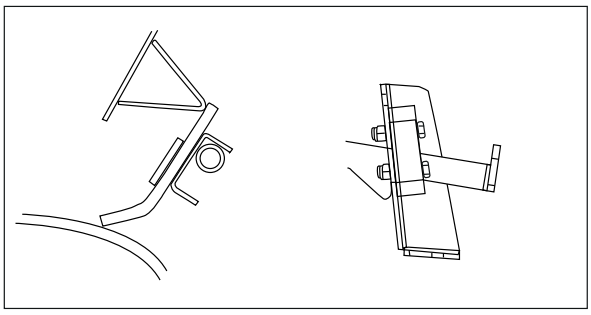
The correct warning and instruction notices can be obtained from the spare parts service.

3.11.1 Warning stickers

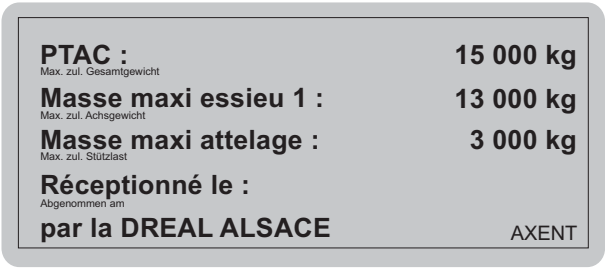
	Read the operator’s manual and warnings. Read and observe the operator's manual and warning messages before commissioning the machine. The operator’s manual explains in detail how to operate the spreader and contains valuable information on operation, care and maintenance.
	Danger due to ejection of material Risk of injury to the entire body due to rapidly ejected spreading material. Before commissioning, instruct all people to leave the hazard zone (spreading range) of the machine.
	Danger due to moving parts Risk of body parts being cut off Reaching into the hazard zones of the rotating spreading discs or the guide rollers of the conveyor belt is strictly prohibited. Switch off the engine and remove the key before carrying out maintenance, repair and adjustment work.
	Remove ignition key Before carrying out any repair and maintenance work, shut off the engine and remove the ignition key. Disconnect the power supply.
	Explosion hazard The nitrogen tank is located under the hopper behind the support stand cylinder The nitrogen tanks are under high pressure. Maintenance and repair only by authorized and qualified personnel.
	Passenger transport prohibited Risk of slipping and injury. Do not climb on the platform of the machine during spreading and transport.

	Danger to life caused by live overhead lines Do not park the towed AXENT 100.1 large area spreader under live overhead lines. Keep safety distance.
	Wheel chock Secure the machine against rolling away when parking with wheel chocks.

3.11.2 Instruction stickers and nameplate

	PTO speed The rated speed of the PTO shaft is 750 rpm.
	Eyelets on frame Labelling of the bracket for fixing the hoisting gear
	Lubrication points
	The cleaning flap is open
	The cleaning flap is closed

	Admissible maximum speed
	**France**: Admissible maximum speed
	Admissible maximum speed (3 m axle)
	Towing bar nameplate and serial number
	Tow coupling nameplate
	AXENT 100.1 large area spreader name plate

	**France**: DREAL license plate
	AXENT 100.1 serial number on frame

3.12 Lighting system, front and rear reflectors, side reflectors

The components of the lighting system must be installed in accordance with the stipulations and be ready to operate at all times. Lights must not be covered or obscured by dirt.

The machine is factory-equipped according to regulations with front, rear and side lighting.

As a standard, the machine is equipped with reflectors and reflector strips on the sides (for attachment to the machine, please refer to figure 3.3).

4 Technical data

4.1 Manufacturer

RAUCH Landmaschinenfabrik GmbH
Landstraße 14
D-76547 Sinzheim
Phone: +49 (0) 7221 / 985-0
Fax: +49 (0) 7221 / 985-200

Service Centre, Technical Customer Service
RAUCH Landmaschinenfabrik GmbH
Postfach 1162
D-76545 Sinzheim
Phone: +49 (0) 7221 / 985-250
Fax: +49 (0) 7221 / 985-203

4.2 Description of the machine

Use the AXENT large area spreader in accordance with chapter „Intended use“ on page 1. The machine consists of numerous assemblies with specific functions.

- Hopper with frame
- Conveyor belt and outlet elements
- Pin or ball coupling
- Wheels and brake system
- Coupling points for spreading unit attachment
- Fertiliser spreading unit or lime spreading unit
- Safety devices, see „Safety equipment at the machine“ on page 17.

4.2.1 Basic machine

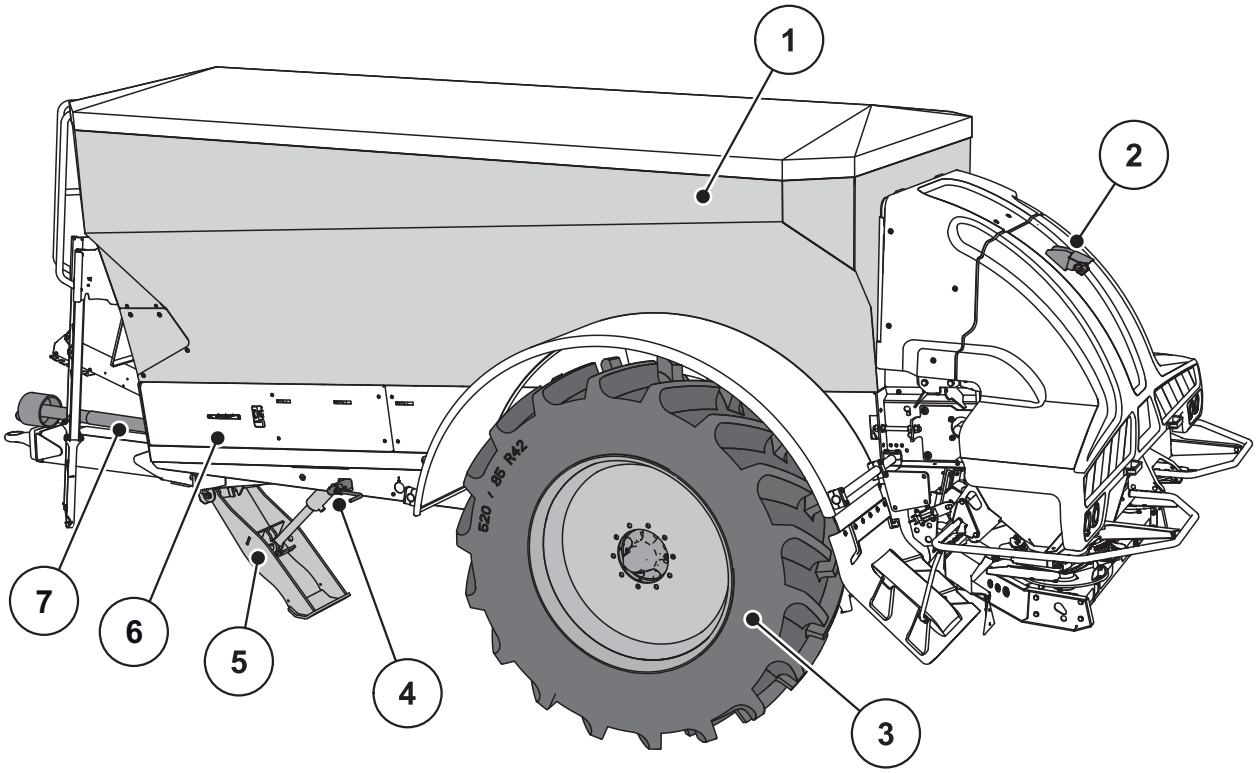


Figure 4.1: Assemblies and function of the AXENT machine, side view

[1] Hopper
[2] rear view camera
[3] Wheel
[4] Parking brake
[5] Support stand
[6] Folding side cover
[7] Drive shaft

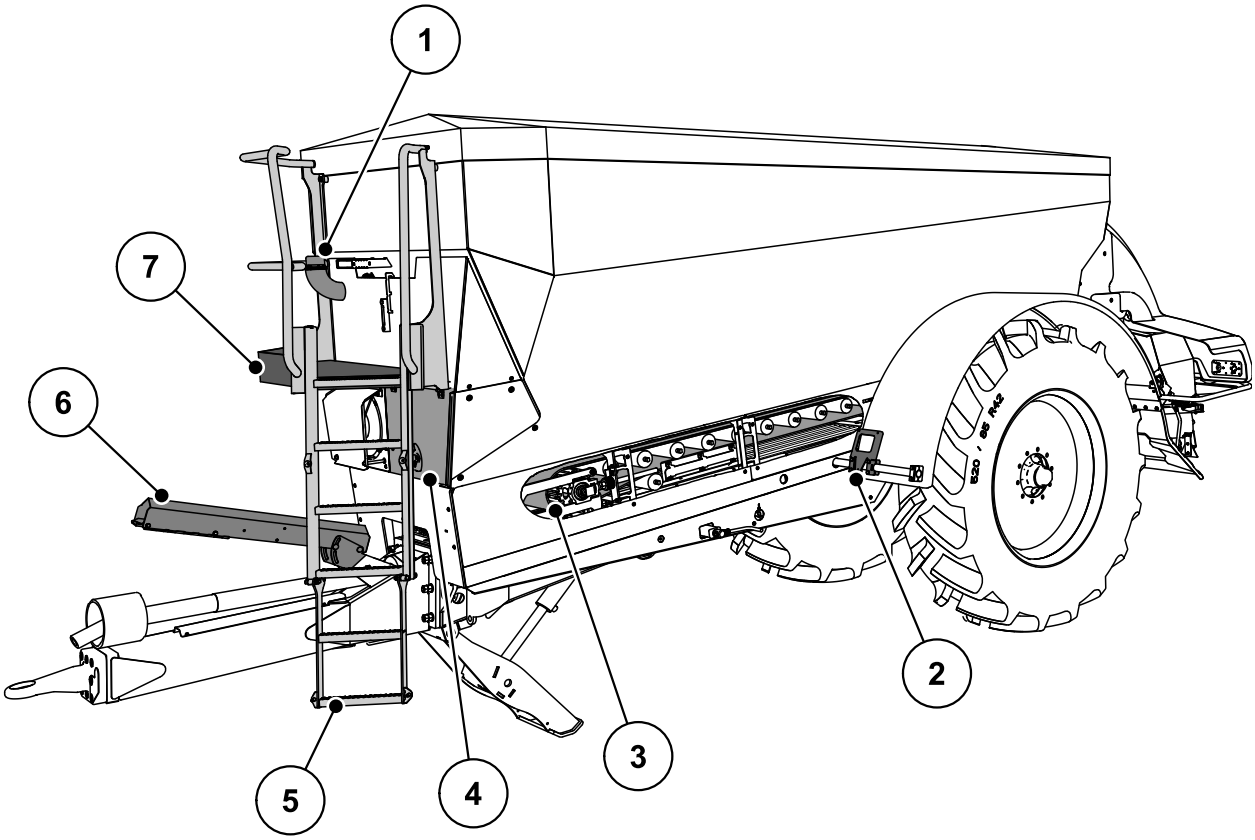


Figure 4.2: Assemblies and function of the AXENT machine, front view

[1] Oil tank filling screw
[2] Wheel chock transport bracket
[3] Conveyor belt
[4] Maintenance flap
[5] Steps
[6] Hose and cable tray
[7] Platform

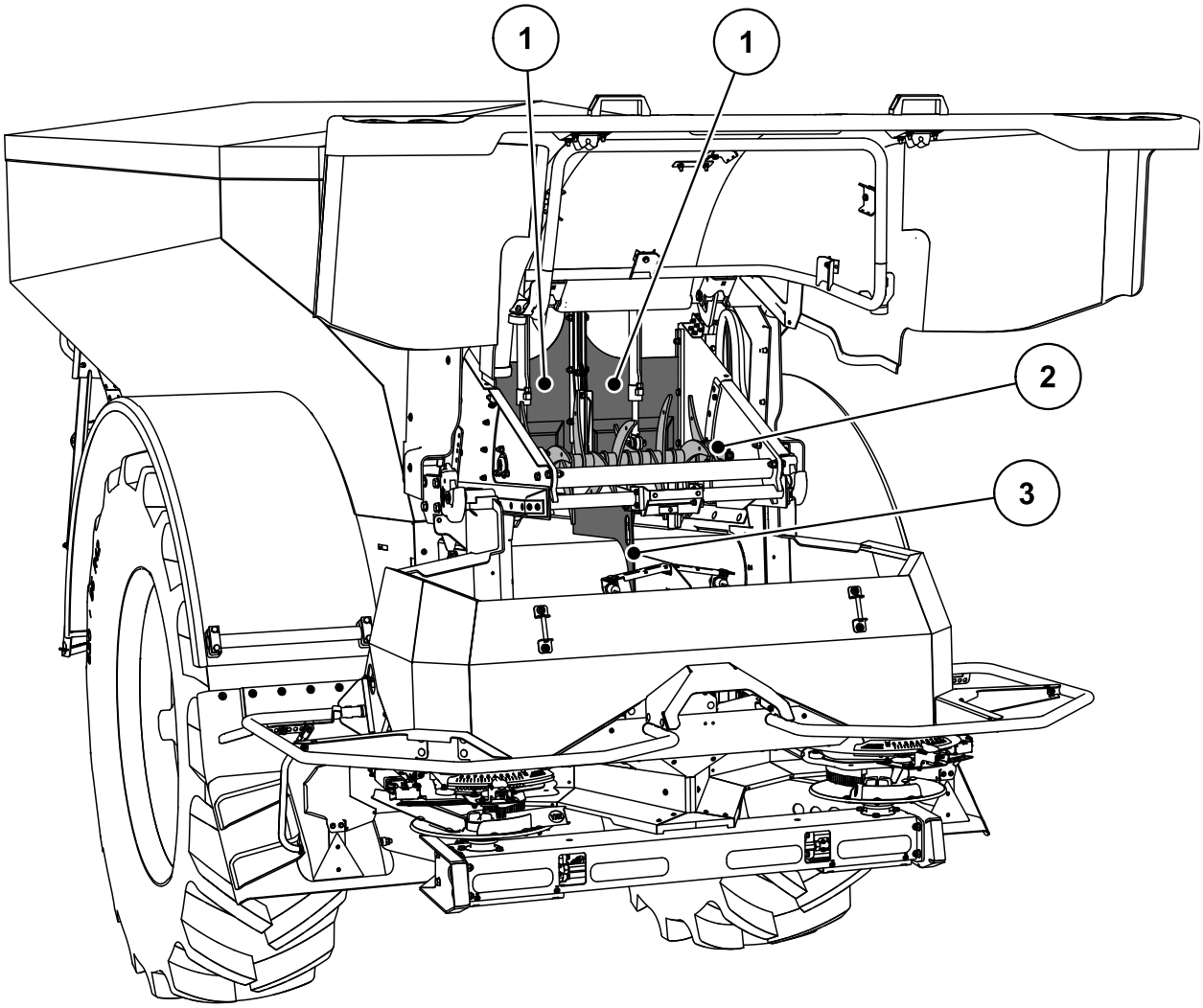


Figure 4.3: Assemblies and function of the AXENT machine, rear view

[1] Pre-metering slide
[2] Comb roller
[3] Removable partition plate

4.2.2 AXIS-PowerPack fertiliser spreading unit

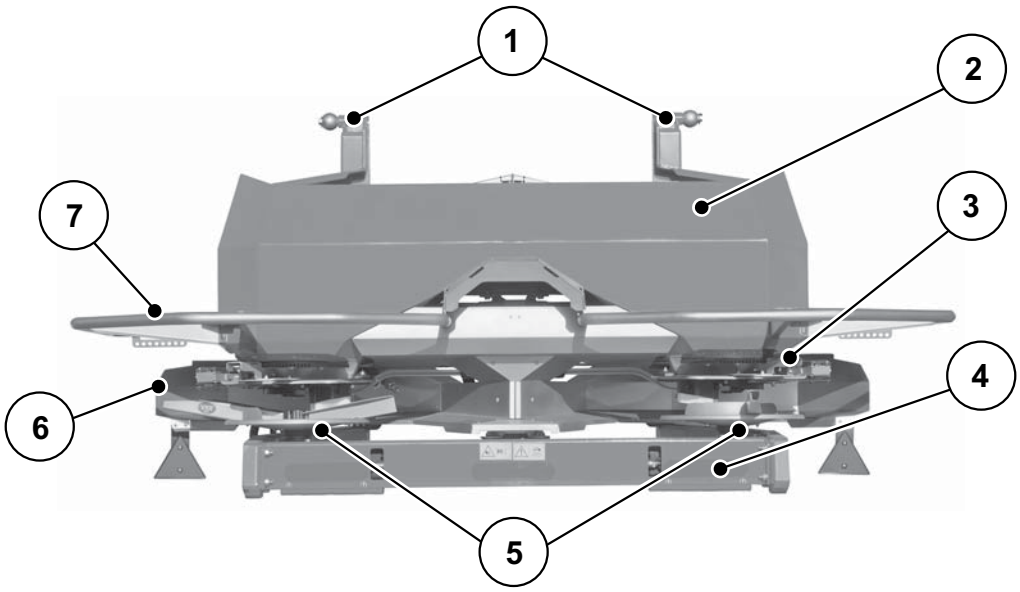


Figure 4.4: Assemblies and function of the AXIS-PowerPack fertiliser spreading unit

[1] Coupling points
[2] Hopper
[3] Adjustment centre for drop point
[4] Spreading disc drive
[5] Spreading disc
[6] Spreading disc cover
[7] Deflector bracket

4.2.3 LIME-PowerPack lime spreading unit

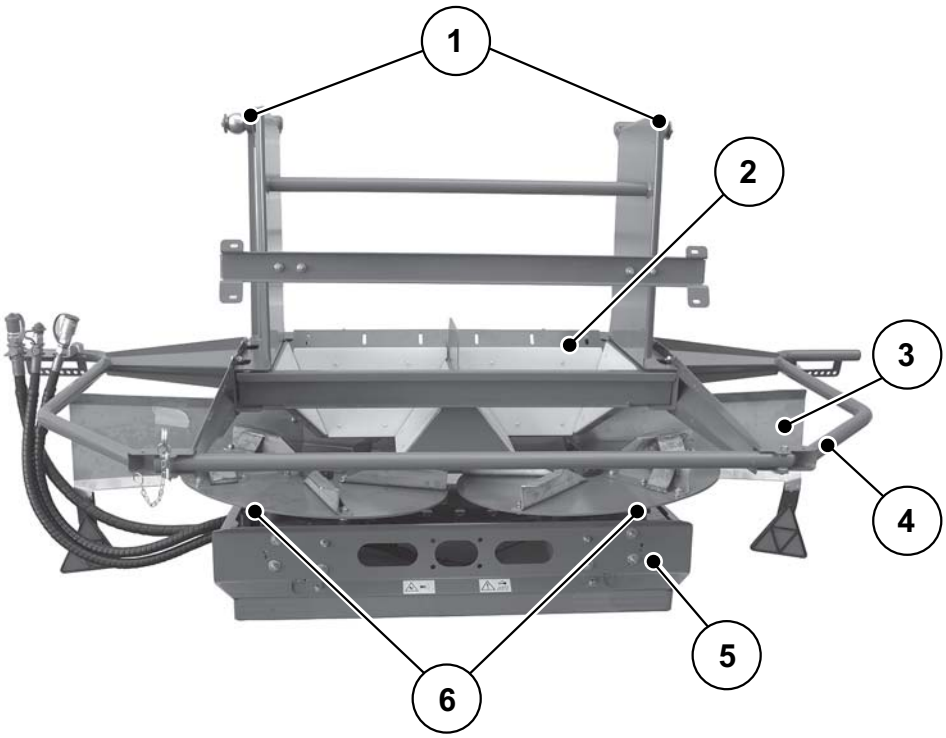


Figure 4.5: Assemblies and function of the LIME-PowerPack lime spreading unit

[1] Coupling points
[2] Funnel
[3] Spreading disc cover
[4] Deflector bracket
[5] Spreading disc drive
[6] Spreading disc

4.3 Machine data

4.3.1 Spreading units

The large area spreader can be equipped with the following spreading units:

- LIME-PowerPack for lime spreading
- AXIS-PowerPack for fertiliser spreading

4.3.2 Technical data of standard equipment

Data	AXENT
Width	2.55 m depending on the tires, up to 3.0 m on the wheels
Height	3.15 m
Ground clearance (relating to lower edge of frame)	0.75m
Hopper capacity	9 400 l
Filling level	2.95 m
Length from trailer unit to vehicle end (with fertiliser spreader installed)	approx. 7.7m depending on the fertiliser spreader installed
Length from trailer unit to axle	5 m (France 4.60 m)
Conveying rate (conveyor belt) [1] max.	1 600 kg/min
Hydraulic pressure max.	280 bar
Hydraulic oil volume max.	100 l/min
Track width [2]	2.00 m
Standard tires [3]	520/85 R42 AC85
Sound pressure level[4] (measured in the closed driver's cabin of the tractor)	75dB(A)

1. Max. conveying rate depending on fertiliser type
2. Different track width (2.25 m) on request
3. Different tyres are available as an option, see 4.4: Optional equipment, page 42.
4. Since the sound pressure level of the machine can only be determined when the tractor is running, the actual measured value is greatly dependent on the tractor type being used.

Weights and loads:

NOTICE

The empty weight (mass) of the machine varies depending on the feature package. The empty weight (mass) shown on the nameplate refers to the standard version.

The technical specifications of the operating license apply and may deviate from the tables below.

Any modification to the towed large area spreader has to be specified in the operating license.

Data		AXENT
Admissible total weight [1]		
with towing bar for top hitching		12,000kg
with towing bar for bottom hitching		13 000 kg
AXIS-PowerPack fertiliser spreading unit weight	approx.	350 kg
LIME-PowerPack lime spreading unit weight	approx.	300 kg
AXENT empty weight	approx.	4 250 kg
Fertiliser payload		
with towing bar for top hitching		7 400 kg
with towing bar for bottom hitching		8 400 kg
Admissible axle load	max.	10,000kg
Admissible bearing load of the trailer unit top hitching	max.	2 000 kg
Admissible bearing load of the trailer unit Bottom hitching	max.	3 000 kg

1. Please refer to the entries in the operating license regarding the wheel load

Centre of gravity:

NOTICE

The position of the centre of gravity depends on the coupling type, the axle position as well as the filling level in the hopper.

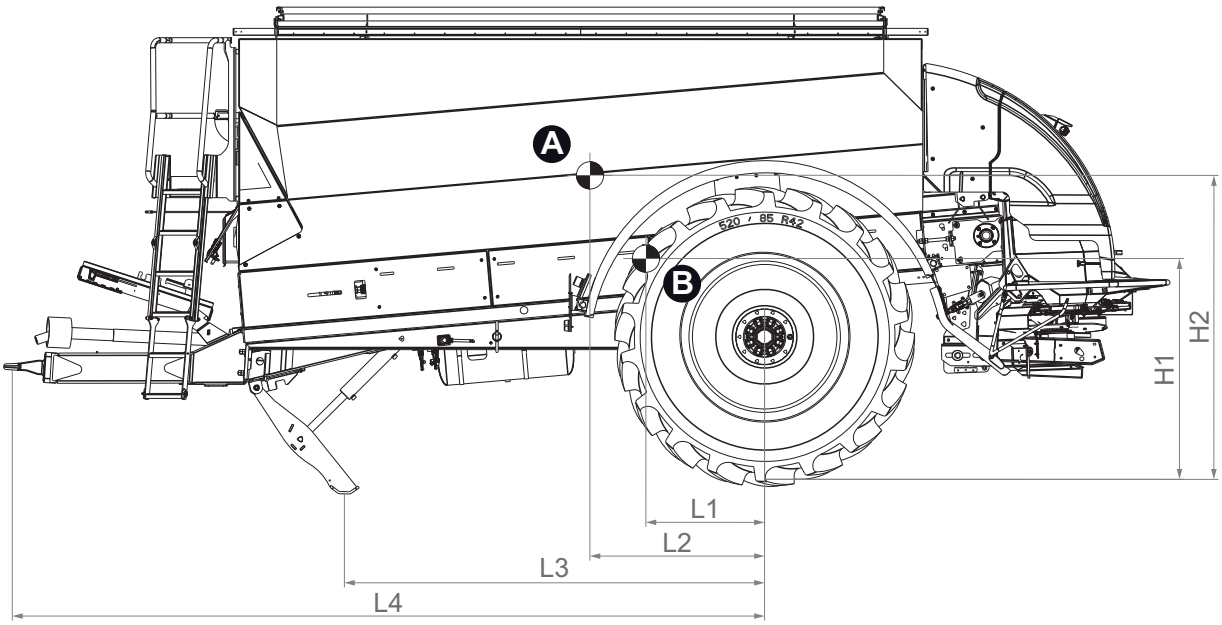


Figure 4.6: Centre of gravity in bottom hitching

[A] Centre of gravity with full hopper
[B] Centre of gravity with empty hopper

Length	Bottom hitching (mm)
L1	727
L2	1111
L3	2780
L4	4980
H1	1460
H2	2010

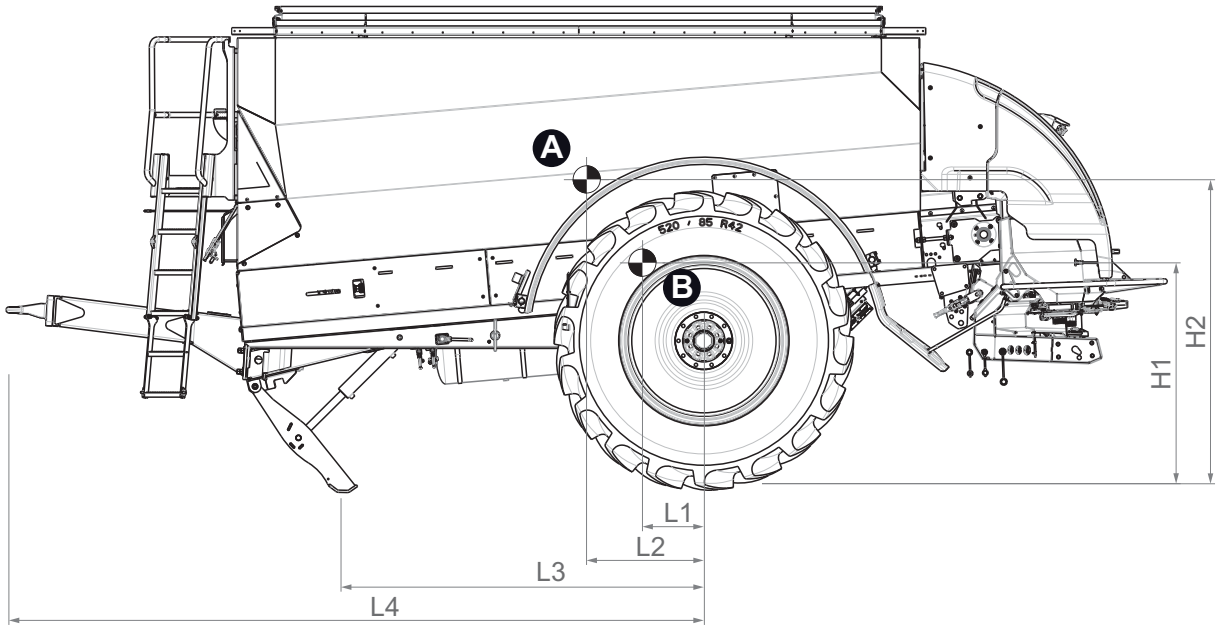


Figure 4.7: Centre of gravity in top hitching

[A] Centre of gravity with full hopper
[B] Centre of gravity with empty hopper

Length	Top hitching (mm)
L1	337
L2	721
L3	2390
L4	4590
H1	1460
H2	2010

4.3.3 Technical data, France

- Length from trailer unit to axle: 4.60 m

Weights and loads:

NOTICE

The empty weight (mass) of the machine varies depending on the feature package. The empty weight (mass) shown on the nameplate refers to the standard version.

The technical specifications of the operating license apply and may deviate from the tables below.

Any modification to the towed large area spreader has to be specified in the operating license.

Data		AXENT
Admissible total weight [1]		15 000 kg
AXIS-PowerPack fertiliser spreading unit weight	approx.	350 kg
LIME-PowerPack lime spreading unit weight	approx.	300 kg
AXENT empty weight	approx.	4 250 kg
Fertiliser payload		10 400 kg
Admissible axle load	max.	13 000 kg
Admissible bearing load of the trailer unit	max.	3 000 kg

1. Please refer to the entries in the operating license regarding the wheel load

Centre of gravity, France:

NOTICE

The position of the centre of gravity depends on the coupling type, the axle position as well as the filling level in the hopper.

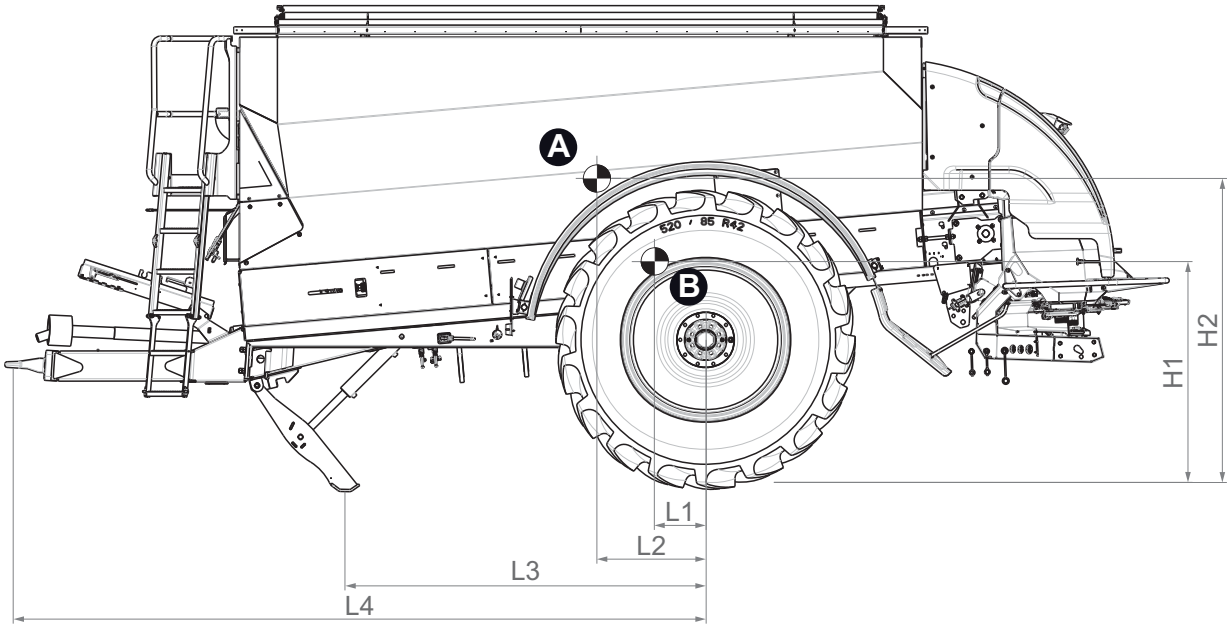


Figure 4.8: Centre of gravity

[A] Centre of gravity with full hopper
[B] Centre of gravity with empty hopper

Length	Bottom hitching (mm)
L1	337
L2	721
L3	2390
L4	4590
H1	1460
H2	2010

4.3.4 Technical data, 3 m axle width

NOTICE

Some models are not available in all countries.

Data	AXENT
Width	3.55 m
Height	3.15 m
Ground clearance (relating to lower edge of frame)	0.75 m
Hopper capacity	9 500 l
Filling level	2.90 m
Length from trailer unit to vehicle end (with fertiliser spreader installed)	approx. 7.7 m depending on the fertiliser spreader installed
Length from trailer unit to axle	5 m
Conveying rate (conveyor belt) [1] max.	1 600 kg/min
Hydraulic pressure max.	280 bar
Hydraulic oil volume max.	100 l/min
Track width	3.00 m
Tires	520/85 R42 MITAS
Sound pressure level[2] (measured in the closed driver's cabin of the tractor)	75dB(A)

1. Max. conveying rate depending on fertiliser type
2. Since the sound pressure level of the machine can only be determined when the tractor is running, the actual measured value is greatly dependent on the tractor type being used.

Weights and loads:

NOTICE

The empty weight (mass) of the machine varies depending on the feature package. The empty weight (mass) shown on the nameplate refers to the standard version.

The technical specifications of the operating license apply and may deviate from the tables below.

Any modification to the towed large area spreader has to be specified in the operating license.

Data		AXENT
Admissible total weight [1]		13 000 kg
AXIS-PowerPack fertiliser spreading unit weight	approx.	350 kg
LIME-PowerPack lime spreading unit weight	approx.	300 kg
AXENT empty weight	approx.	4 400 kg
Fertiliser payload		8 400 kg
Admissible axle load	max.	10,000kg
Admissible bearing load of the trailer unit	max.	3 000 kg

1. Please refer to the entries in the operating license regarding the wheel load

Chassis and brakes:

Data	AXENT
Chassis	BPW rigid axle with flange size 3 m
Braking system	BPW hydraulic system
Manuel parking brake	crank handle
Maximum transport speed	30 km/h

Centre of gravity:

NOTICE

The position of the centre of gravity depends on the coupling type, the axle position as well as the filling level in the hopper.

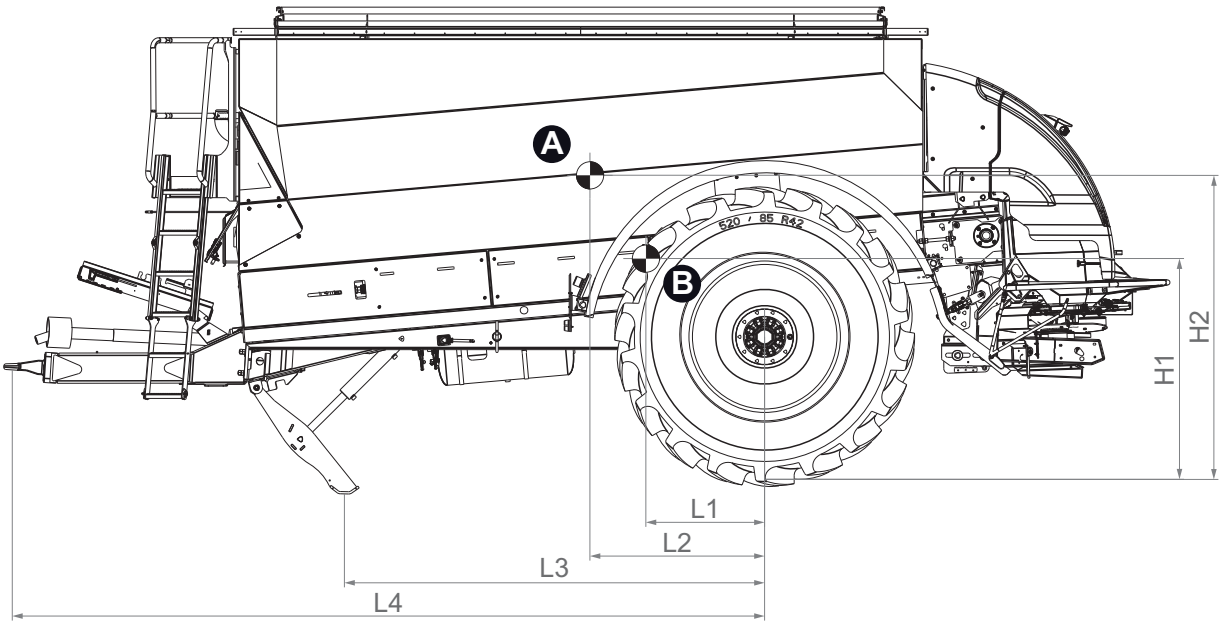


Figure 4.9: Centre of gravity

[A] Centre of gravity with full hopper
[B] Centre of gravity with empty hopper

Length	Value (mm)
L1	727
L2	1111
L3	2780
L4	4980
H1	1460
H2	2010

4.3.5 Technical data of fertiliser spreading unit

Data	AXIS-PowerPack
Overall width with deflector bracket	2.55 m
Working width [1]	18 - 50 m
Hopper capacity	approx. 200 l
Mass flow[2]	500 kg/min
Hydraulic pressure	200 bar
Hydraulics performance	60 l/min

1. Working width depending on the fertiliser type
2. Max. mass flow depending on fertiliser type

4.3.6 Technical data of lime spreading unit

Data	LIME-PowerPack
Overall width with deflector bracket	2.50 m
Working width[1]	up to 18 m
Spreading disc speed	700 rpm
Comb roller RPM	50 rpm
Mass flow[2]	1 600 kg/min
Hydraulic pressure	250 bar
Hydraulics performance	60 l/min

1. Working width depending on the lime type
2. Max. mass flow depending on the lime type

4.4 Optional equipment

- Lighting to the front if the transportation width exceeds 2.75 m due to the tyres (*StVZO* [*Straßenverkehrszulassungsverordnung*, German road traffic licensing regulations]).
- Towing bar for top hitching (2000 kg support load)
- Universal drive shaft 1 3/8”, 6-part
- Weighing unit
- kingpin steering
- Wheel 520/85 R 46, load bearing capacity: 5000 kg required
- **France**: Wheel 520/85 R 46, load bearing capacity: 6500 kg required
- Hydraulic braking system (not for Germany)
- LIME-PowerPack lime spreading unit with comb roller
- Granulate disc parts set for LIME-PowerPack with S4 spreading disc set
- CCI terminal

5 Transportation without tractor

5.1 General safety instructions

⚠ CAUTION

Material damage due to incorrect transportation

The lifting eyes in the hopper are **not** suited for lifting the entire machine. They are only used for transporting the hopper during manufacture.

Non-compliance leads to damage at the machine.

▶ Observe the shipping instruction of the manufacturer.

Read the following instructions before transporting the machine:

- If no tractor is used, the machine may only be transported with an empty hopper.
- Only suitable, instructed and expressively authorized persons may execute the work.
- Only use suitable means of transport and lifting gear (e.g. low-loading truck with wheel recess, ropes, etc.)
- Determine the transportation route early, and remove possible obstacles.
- Check that all safety and transportation devices are fully operational.
- Secure all danger areas appropriately, even if they only exist briefly.
- The person responsible for transportation must ensure that the machine is transported appropriately.
- Unauthorised persons are to be kept away from the transport route. Cordon off the affected areas.
- Cautiously transport the machine and handle it with care.
- Observe the centre of gravity!

5.2 Loading and unloading, parking

1. Determine the weight of the machine.

   Please observe the information in chapter Technical data.
2. Carefully move the machine from or on the loading platform with a suitable tractor.
3. Carefully set the machine down on the loading platform of the transport vehicle or on solid ground.

6 Commissioning

6.1 Accepting the machine

When accepting the machine, please check the completeness of the delivery.

The standard equipment includes

- 1 AXENT 100.1 large area spreader
- 1 operator's manual AXENT 100.1
- 1 ISOBUS cable
- 1 feeder mesh in hopper
- 2 wheel chocks
- 1 fertiliser or lime spreading unit
- 1 wide-angle universal drive shaft
- 2 levers for the ball valves of the towing bar suspension
- 1 AXENT H ISOBUS electronic machine control unit with operator’s manual
- 1 type certificate §21 *StVZO* [*Straßenverkehrszulassungsverordnung*, German road traffic licensing regulation]
- For France: DREAL „Barré rouge“

Please also check any optional equipment that you ordered.

Check for any shipping damage or missing parts. Have any shipping damage confirmed by the forwarding agent.

NOTICE

When receiving the machine, check that all attached components are correctly and securely tightened.

If in doubt, contact your salesperson or the manufacturer directly.

6.2 Operating license

6.2.1 Germany

The towed AXENT 100.1 large area spreader requires an **operating license**.

Based on the type report included in the scope of delivery, your responsible authority will grant you an operating license for individual vehicles on request.

A valid operating license is a precondition for participating in public road traffic.

The towed AXENT 100.1 large area spreader was approved by an officially recognized expert for public road travel in Germany.

According to the approval, the AXENT 100.1 large area spreader is classified as a rigid bar transport trailer with changeable spreading unit.

⚠ DANGER

Risk of accident without spreading unit

If the AXENT 100.1 large area spreader is driven on public roads without spreading unit, there is a risk of accident. Severe personal or fatal injury may occur. The spreading unit serves as rear underride protection.

▶ Attach spreading unit for public transport of the large area spreader.

The license is issued on request and after presentation of the certificate for the individual license at the responsible local registration office.

The license is issued by assignment of a dedicated registration number, stamping of the registration number and preparation of an approval certificate part 1 and part 2.

NOTICE

Vehicle license regulation

Without license, travelling on public roads is prohibited.

- Prior to travelling on public roads, always apply for a license for the towed AXENT 100.1 large area spreader at the responsible local registration office!

Every 2 years, the towed AXENT 100.1 large area spreader has to be presented for general technical inspection.

6.2.2 France

The large area spreader has been authorised by the DREAL. The DREAL approval, which is also called “Barré rouge”, describes the condition at delivery ex factory.

The DREAL approval is required for the vehicle registration and the type approval of your machine.

- Please check to ensure that the “Barré rouge” is included in the scope of delivery.

6.2.3 Other countries

The large area spreader is manufactured in Germany and supplied with a type certificate. The type certificate describes the delivery condition ex factory.

Please observe the applicable road traffic regulations of the respective country or the location of use of the large area spreader. If required, the importer will register your machine with the relevant registration office for use in public road traffic.

- For additional identification (warning sign, lighting) please contact your dealer or importer.

6.3 Tractor requirements

To ensure a safe and correct use of the machine, the tractor must meet the necessary mechanical, hydraulic, and electrical requirements.

- Tractor engine power: at least 180 HP
- Admissible static load:
  - Top hitching: 2000 kg, pin or ball coupling K80
  - Bottom hitching: 3000 kg, ball coupling or hitch coupling
- 1 double-acting control unit for the support stand
- 1 double-acting control unit for the hopper cover
- Universal drive shaft connection:
  - 1 3/8 inches, 6-part, 1000 rpm or
  - 1 3/4 inches, 20-part,
- Operating voltage: 12V, must also be ensured if several loads are connected simultaneously
- ISOBUS connection according to ISO 11 783
- COBO socket according to ISO 12 369 for the lighting system
- Connections for the compressed air braking device (control line and supply line)

6.4 Mounting the universal drive shaft at the machine

⚠ CAUTION

Material damages due to unsuitable drive shaft

The machine is delivered with a drive shaft that is designed according to the device and performance.

The use of incorrectly dimensioned or inadmissible drive shafts, for instance without guard or suspension chain, may cause personal injury or lead to damage to the tractor and/or the machine.

- ▶ Use universal drive shafts approved by the manufacturer only.
- ▶ Follow the directions in the operator's manual of the universal drive shaft manufacturer.

6.4.1 Fitting/removing the universal drive shaft

Fitting:

1. Check the attachment position.
   - ▷ The drive shaft end that is marked with a tractor symbol must point to the tractor.
2. Untighten the eyelet [1] and bolt [2] of the protective sheet at the universal drive shaft panel with the adjustment lever.

   Adjustment lever position, see figure 6.11.
3. Disassemble the protective sheet.

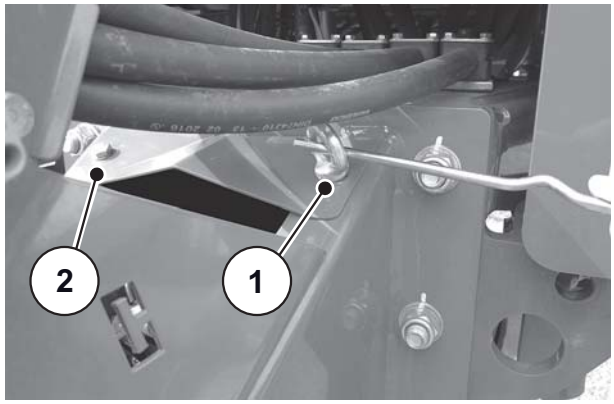


Figure 6.1: Removing the protective sheet

4. Remove the spigot protection and grease the transmission spigot.

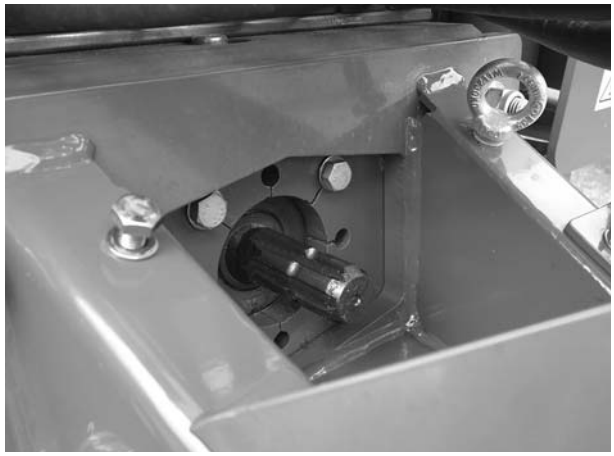


Figure 6.2: Grease the transmission spigot

5. Press the sliding pin [1].
6. Pull the universal drive shaft onto the transmission spigot until it latches in the ring groove.
7. Release the slider pin.

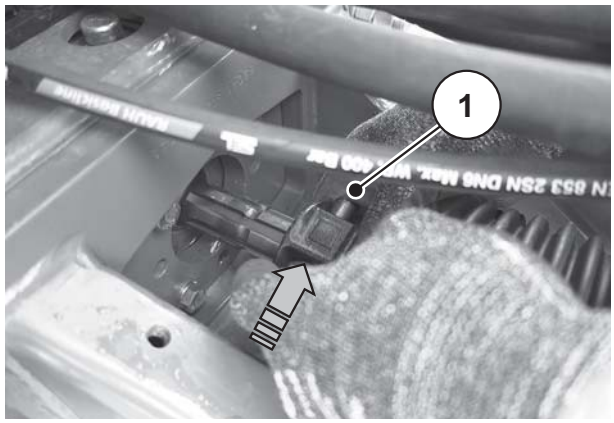


Figure 6.3: Push the universal drive shaft onto the transmission spigot

8. Apply the protective sheet [1].
9. Apply 2 washers.
10. Tighten the screw and the eyelet with the adjustment lever at the protective sheet.

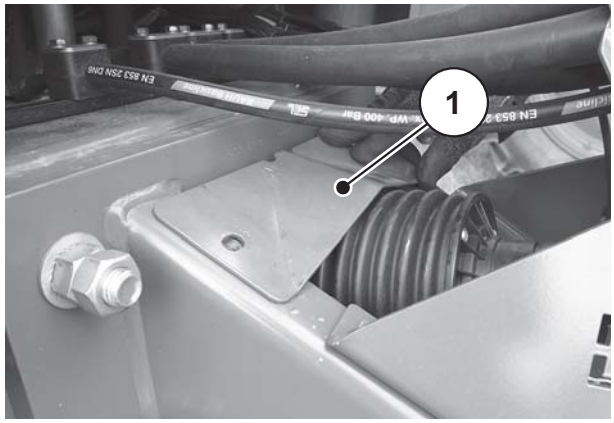


Figure 6.4: Assemble the protective sheet

11. Secure the safety chain through the bore hole of the eyelet.

Figure 6.5: Securing the safety chain

Instructions for dismounting:

- Dismount the universal drive shaft in reverse order of attachment.

6.5 Connecting the machine to the tractor

⚠ DANGER

Danger to life due to unsuitable tractor

Using an unsuitable tractor for the machine may result in severe accidents during operation or road travel.

- ▶ Only use tractors that comply with the technical requirements of the machine.
- ▶ Use the vehicle's documentation to check if your tractor is suitable for the machine.

⚠ DANGER

Danger to life due to inattention or faulty operation.

There is a crushing hazard that may result in fatal injury for persons standing between the tractor and the machine when the tractor approaches or the hydraulic system is actuated.

The tractor may brake too late or not at all because of inattention or faulty operation.

- ▶ Ensure that nobody is present in the hazard zone between the tractor and the machine.

⚠ WARNING

Risk of injury and material damage due to excessive static load

Exceeding the maximum drawbar load will impair the steering and braking efficiency of the machine and/or the tractor.

This may lead to personal injury. This can cause severe damage to the machine, the tractor and/or the environment.

- ▶ Observe the admissible bearing load of the tractor.
- ▶ Observe the admissible bearing load of the trailer unit.

Check the following specific requirements:

- Are both the tractor and the machine in a reliable condition?
- Does the tractor comply with the mechanical, hydraulic, and electrical requirements (see “Tractor requirements“, page 47)?
- Does the tractor comply with the requirements defined by the technical data of the towed large area spreader (towed load, static load, etc.)?
- Is the machine securely positioned on level and solid ground?
- Is the machine secured appropriately against rolling away?
- Is the ISOBUS terminal installed in the tractor and functional?
- Is the combination of connection elements (towing eye - pin coupling and/or coupling bracket - ball coupling) admissible?

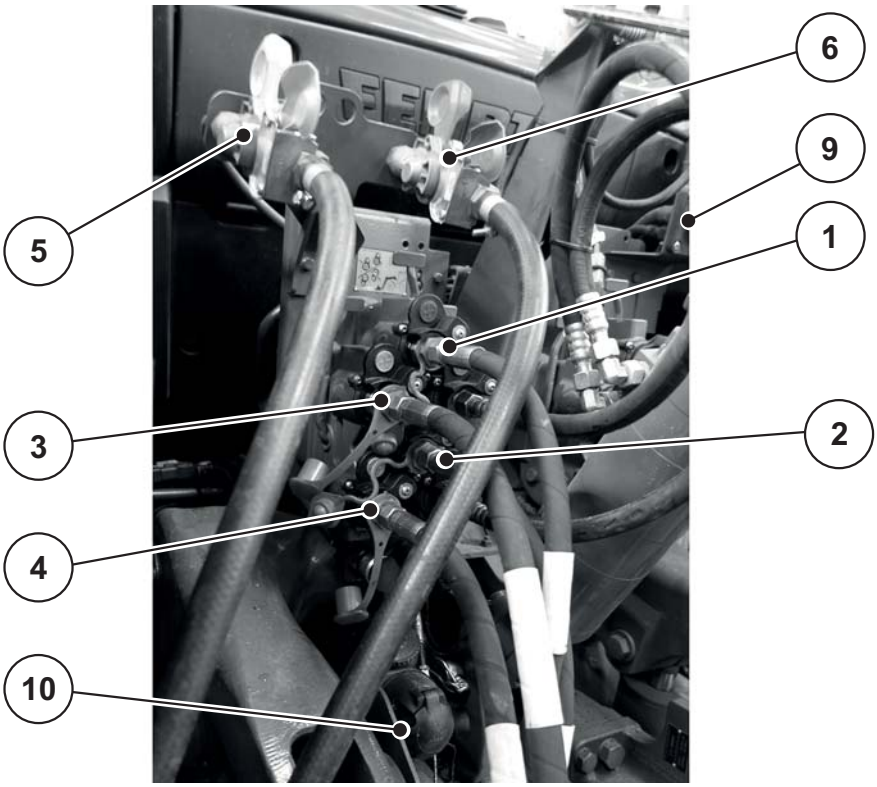


Figure 6.6: AXENT large area spreader connection order

[1] Support stand hydraulic line
[2] Support stand hydraulic line
[3] Hopper cover hydraulic line
[4] Hopper cover hydraulic line
[5] Pneumatic control line (compressed air brake)
[6] Pneumatic line compressed air tank (compressed air brake)
[7] Hydraulic line (hydraulic brake) - not illustrated
[8] Breakaway coupling release chain (hydraulic brake) - not illustrated
[9] ISOBUS connector
[10] Lighting connector

1. Position the tractor at the machine.
2. Switch off the tractor engine. Remove the ignition key.
3. Connect hydraulic lines [1] and [2] of the **support stand** to the hydraulic control unit of the tractor.

   Refer to “AXENT large area spreader connection order“, page 51.
4. Connect hydraulic lines [3] and [4] of the **hopper cover** to the hydraulic control unit of the tractor.

6.5.1 Couple the ball coupling (version A)

1. Start the tractor.
   - The PTO shaft is switched off.
   - The hydraulic system is switched off.
   - The holding-down clamp of the ball coupling is open.
2. Precisely position the ball coupling of the tractor under the coupling bracket of the machine.
3. Apply the tractor hand brake.
4. Operate the control valve at the tractor until the support stand is fully retracted.

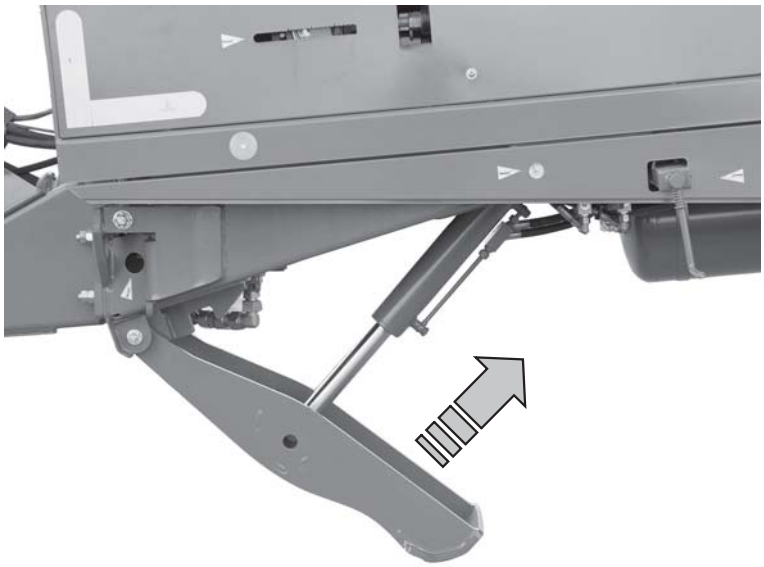


Figure 6.7: Retracting the support stand

5. Switch off the tractor engine. Remove the ignition key.
6. Close the holding-down clamp.

   In this respect, please also refer to the instructions of the tractor manufacturer.

▷ **The connection is secured.**

6.5.2 Couple the pin coupling (version B)

1. Start the tractor.
   - The PTO shaft is switched off.
   - The hydraulic system is switched off.
   - The pin coupling is open.
2. Position the tractor at the machine.
3. Set the height of the hydraulic support stand of the machine to ensure that the drawbar ring is precisely engaged into the pin coupling of the tractor.
4. Apply the tractor hand brake.
5. Switch off the tractor motor. Remove the ignition key.
6. Close the coupling bolt.

   In this respect, please also refer to the instructions of the tractor manufacturer.

⚠ CAUTION

Material damage to the drive shaft in the event of bottom hitching

When driving, a collision between the drive shaft and the lower link hooks of the tractor can occur. The drive shaft can be bent.

- ▶ Bring the lower link hooks into the upper position and secure them.
- ▶ Ensure that there is enough free space in the steering movement.

7. Slowly retract the hydraulic support stand of the machine. Refer to figure 6.7.

▷ **The connection is secured.**

6.5.3 Hitch coupling (version C)

1. Start the tractor.
   - The PTO shaft is switched off.
   - The hydraulic system is switched off.
2. Position the tractor at the machine.
3. Set the height of the hydraulic support stand of the machine to ensure that the hitch ring is precisely engaged into the hitch hook of the tractor.
4. Apply the tractor hand brake.
5. Switch off the tractor motor. Remove the ignition key.
6. Close the holding-down clamp.

   In this respect, please also refer to the instructions of the tractor manufacturer.

▷ **The connection is secured.**

6.5.4 Gyroscope assembly for kingpin steering (optional equipment)

Figure 6.8: Gyroscope and bracket

NOTICE

Mount the gyroscope and its bracket at the tractor

- Please observe the assembly instructions specified in the **ISOBUS TRAIL Control operator's manual of Müller Elektronik**. The operator's manual is an integral part of the electronic control unit.

6.5.5 Fitting the universal drive shaft at the tractor

⚠ CAUTION

Material damages due to excessively long drive shaft

When the machine is lifted up, the universal drive shaft halves can come into contact inside each other. This can cause damage to the drive shaft, the transmission or the machine.

- ▶ Check the clearance between the machine and the tractor.
- ▶ Make sure there is enough space (at least 20 to 30mm) between the outer pipe of the drive shaft and the protective cone on the spreader side.

NOTICE

Observe the installation and shortening instructions provided in the **operator's manual of the drive shaft manufacturer** when checking and adjusting the drive shaft. The operator's manual is attached to the drive shaft on delivery.

1. Install the universal drive shaft at the tractor.

   With the first commissioning, adjust the universal drive shaft to the tractor.
2. Shorten the universal drive shaft, if required.

NOTICE

Have the universal drive shaft shortened **only** by your dealer or an authorized specialist.

6.5.6 Braking system

The machine is equipped with a **compressed air braking system**.

In connection with the braking system, please also refer to the respective national regulations of the country where you use the machine.

As a standard, the machine is equipped with a manual parking brake.

⚠ WARNING

Risk of injury due to unsecured machine

Until the machine is fully coupled, it may still roll and cause personal injury. When decoupling the machine, always observe the following sequence for the pneumatic lines:

- ▶ Ensure that nobody is in the hazard zone.
- ▶ First, connect the yellow coupling head (brake line).
- ▶ Then, connect the red coupling head (supply).

For commissioning, please observe the following instructions:

- Before connecting, clean the gaskets and the coupling heads of the pneumatic system.
- Observe the connecting sequence: Refer to figure 6.6.
- After connecting and before every drive, check the leak-tightness and the function of the braking system. To do so, apply the driving brake of the tractor.
- Do not drive with the connected machine until the manometer in the tractor cabin shows the operating pressure intended for the tractor.

NOTICE

For further information, please refer to the operator's manual of the tractor.

Hydraulic braking system (optional equipment)

The hydraulic braking system is equipped with a release chain. The equipment serves as breakaway coupling in case of unintended decoupling of the machine from the tractor.

- Observe the connecting sequence: Refer to figure 6.6.
- Make sure that the release chain at the tractor is connected.

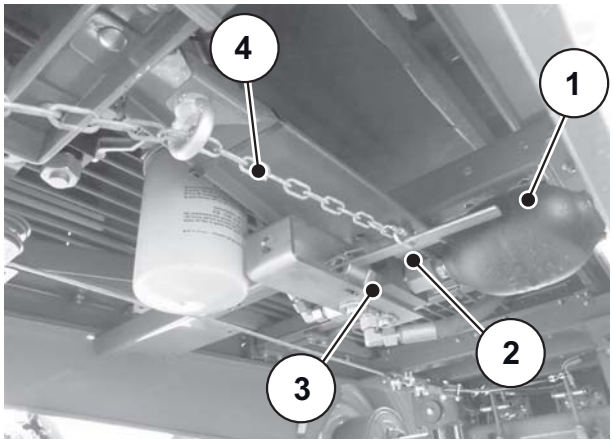


Figure 6.9: Breakaway coupling of the hydraulic braking system

[1] Pressure accumulator
[2] Control lever
[3] Safety valve
[4] Release chain

6.5.7 Releasing the parking brake

1. Remove the wheel chocks and insert them into the transport bracket [2].
2. Only disengage the parking brake [1] after the machine is coupled to the tractor and the pneumatic lines are connected.

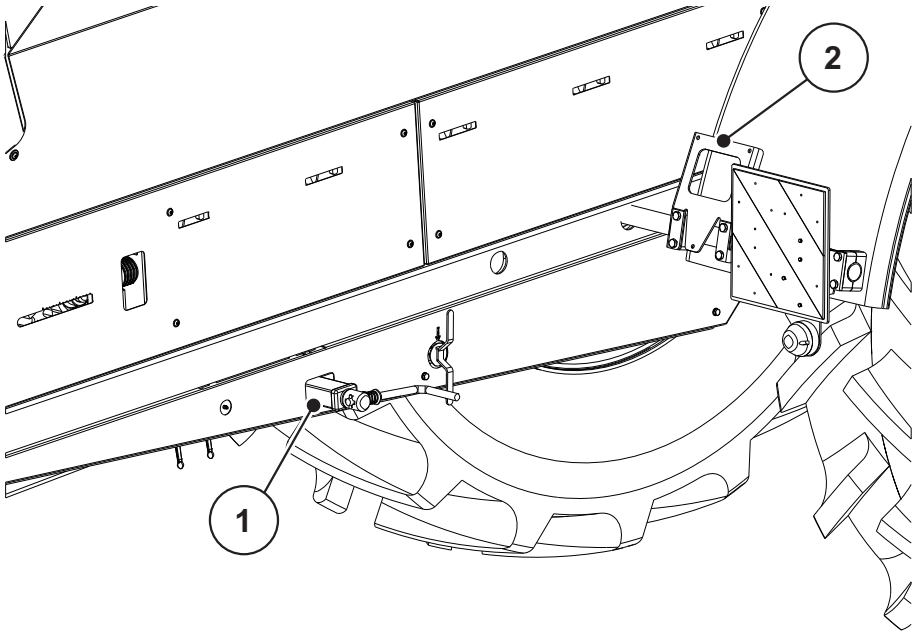


Figure 6.10: Disengaging the manual parking brake

[1] Parking brake
[2] Wheel chock transport bracket

6.5.8 Establishing other connections

1. Connect the lighting.
   Refer to figure 6.6.
2. Always check the lighting system prior to travel.
3. Connect the ISOBUS cable to the ISOBUS connector of the tractor.

NOTICE

Observe the operator's manual of the AXENT ISOBUS electronic control unit.

6.5.9 Hydraulic system

The machine is equipped with an on-board hydraulic system. Via the universal drive shaft, an axial piston pump is driven. The axial piston pump supplies the following functions:

- Belt drive
- pre-metering slide
- AXIS-PowerPack
- LIME-PowerPack with comb roller (optional equipment)
- Steering axle (optional equipment)

The axial piston pump ensures a constant operating pressure at a universal drive shaft speed of 650 to 1300 rpm.

NOTICE

Observe chapter "Spreading operation", page 79 as well as the operator's manual of the AXIS H ISOBUS and AXENT ISOBUS electronic control units.

The hydraulically folding support stand and the hydraulic towing bar damping are connected to the tractor control valve.

Towing bar damping system contains nitrogen tanks.

⚠ WARNING

Risk of injury due to hot surfaces

The reservoir body can get hot. There is a danger of burns.

▶ All work at hydraulic and pneumatic connections of the nitrogen tank may **only be carried out by qualified personnel**.

6.6 Fitting the spreading unit at the machine

6.6.1 Requirements

- **Disassemble the feeder mesh and the partition plate** at the machine outlet prior to installation of the LIME-PowerPack spreading unit. Refer to “Feeder mesh disassembly (LIME-PowerPack)“, page 60.
- The large area spreader is empty.
- The large area spreader is coupled to the tractor.
- The large area spreader and tractor are secured against rolling.
- The rear cover is folded-up.

For disassembly and assembly of specific components at the AXENT large area spreader, the adjustment lever is required as tool. It is located at the front of the machine.

[1] Adjustment lever (left in direction of travel, hose bracket)

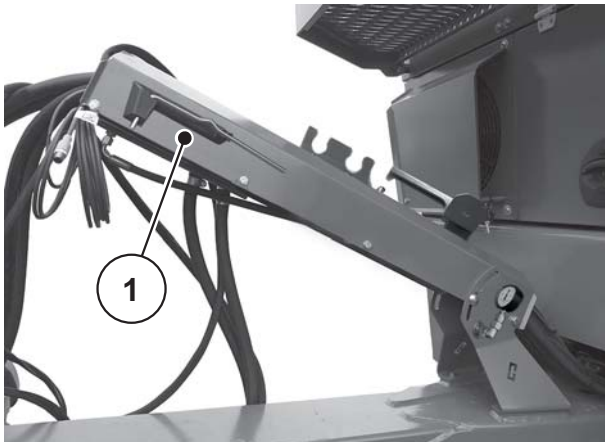


Figure 6.11: Adjustment lever position

6.6.2 Feeder mesh disassembly (LIME-PowerPack)

Disassemble the feeder mesh if the LIME-PowerPack spreading unit is used. This prevents the formation of lime bridges in the hopper.

Requirements

- Position an empty pallet at the height of the hopper edge using a forklift truck.
- Secure the forklift truck against rolling.
- Securely position all components of the feeder mesh on the pallet.

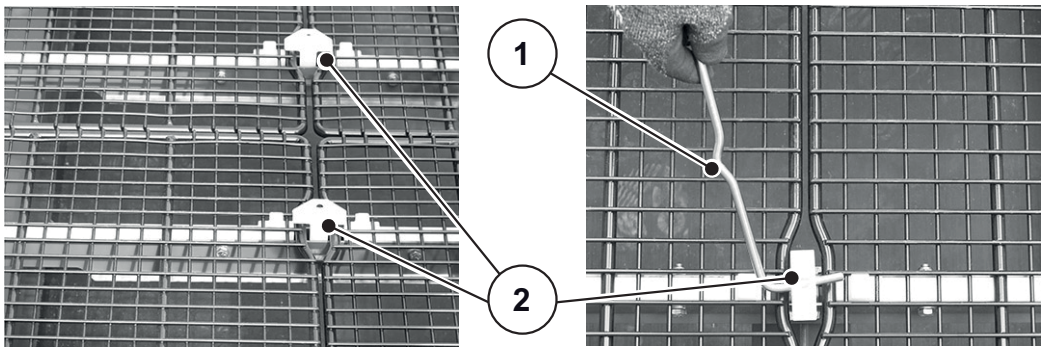


Figure 6.12: Unlocking the bracket

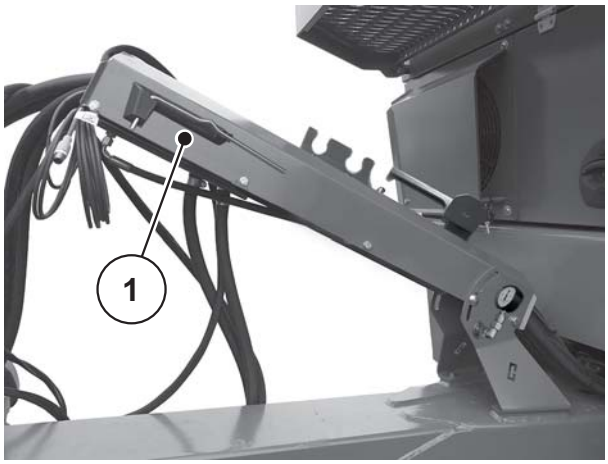
[1] Adjustment lever
[2] Locking the mesh support

1. Unlock the locking mechanisms of all 4 mesh supports.
   ▷ The components of the feeder mesh are free.
2. Remove the components of the feeder mesh and position them on the pallet.
3. Remove the mesh supports and position them on the pallet.
4. Remove the pallet and store it in a safe place.

▷ **The feeder mesh is disassembled.**

6.6.3 Partition plate disassembly (LIME-PowerPack)

The partition plate is not suitable for distribution of lime and has to be disassembled.



[1] Adjustment lever (left in direction of travel, hose bracket)

Figure 6.13: Adjustment lever

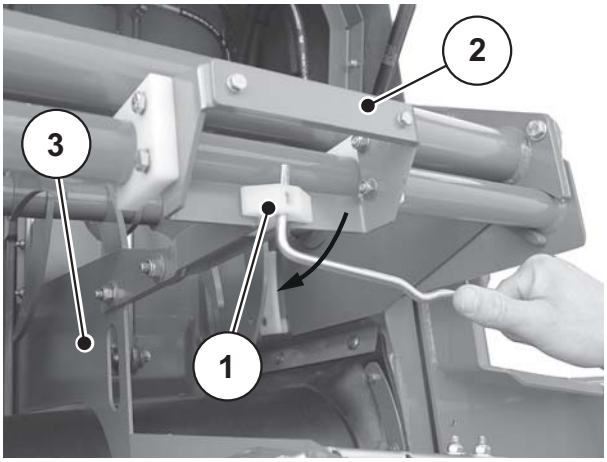


Figure 6.14: Disassembling the partition plate

1. Remove the adjustment lever from the bracket.
2. Turn the plastic locking mechanism [1] with the adjustment lever by 90 degrees.
   ▷ The partition plate [3] is unlocked.
3. Pull the partition plate out of the guide at the handle [3].
4. Swivel the partition plate slightly to the side to take it out between the bracket and the spreading unit hopper.

▷ **The partition plate is disassembled.**

6.6.4 Partition plate assembly (AXIS-PowerPack)

The partition plate is assembled at the factory to ensure even distribution of the fertiliser in both hopper parts of the AXIS-PowerPack spreading unit. If the spreading unit is changed regularly, assemble the partition plate and the feeder mesh (“Feeder mesh assembly (AXIS-PowerPack)“, page 64) at the machine outlet **prior to installation of the AXIS-PowerPack spreading unit**.

1. Assemble the partition plate [1] horizontally between the bracket and the spreading unit hopper [2].
2. Vertically set the partition plate.

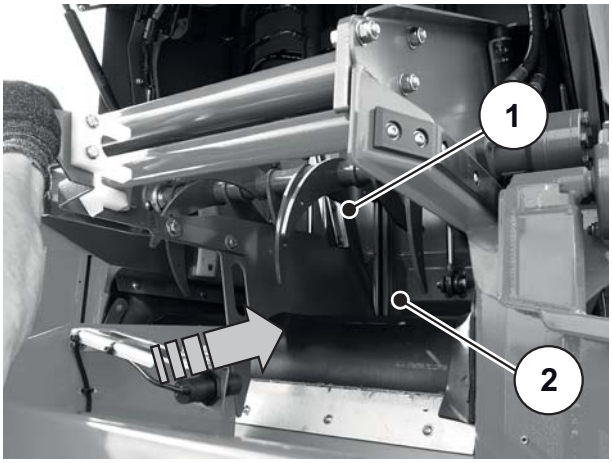


Figure 6.15: Assembling the partition plate

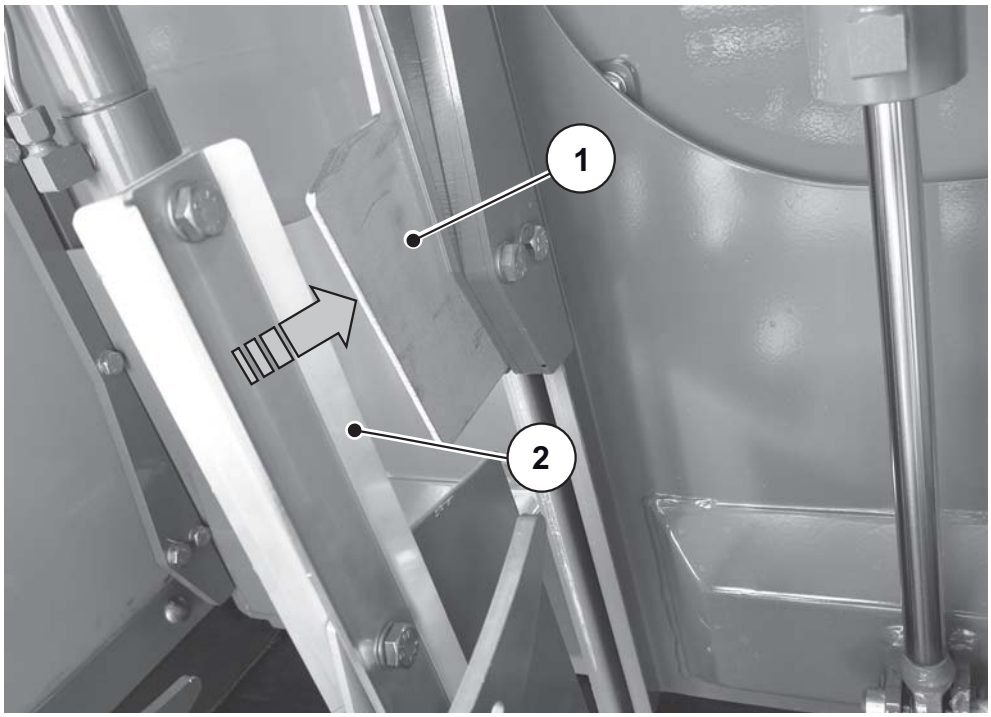


Figure 6.16: Inserting the partition plate into the guide

[1] Metal sheet guide
[2] Guide holder

3. Slide the partition plate inwards until the sheet guide is engaged into the guide holder at the partition plate.

4. With the handle [1], slide open the fork [2] at the tube.
5. Turn the locking mechanism [3] with the adjustment lever by 90 degrees.

▷ **The partition plate is assembled.**

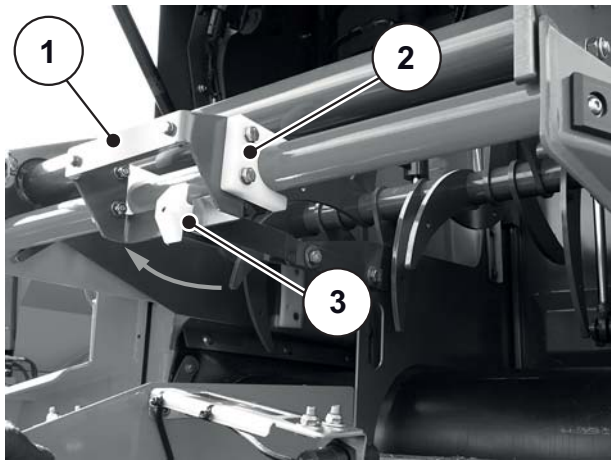


Figure 6.17: Securing the partition plate

6.6.5 Feeder mesh assembly (AXIS-PowerPack)

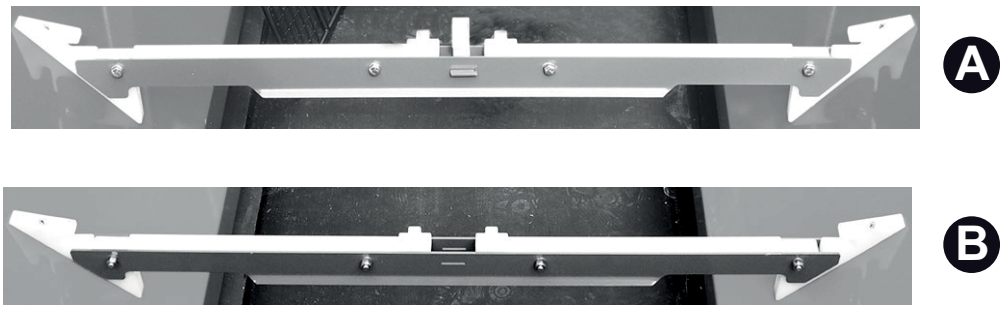


Figure 6.18: Mesh supports

[A] Mesh support with locking mechanism
[B] Mesh support with positioning elements

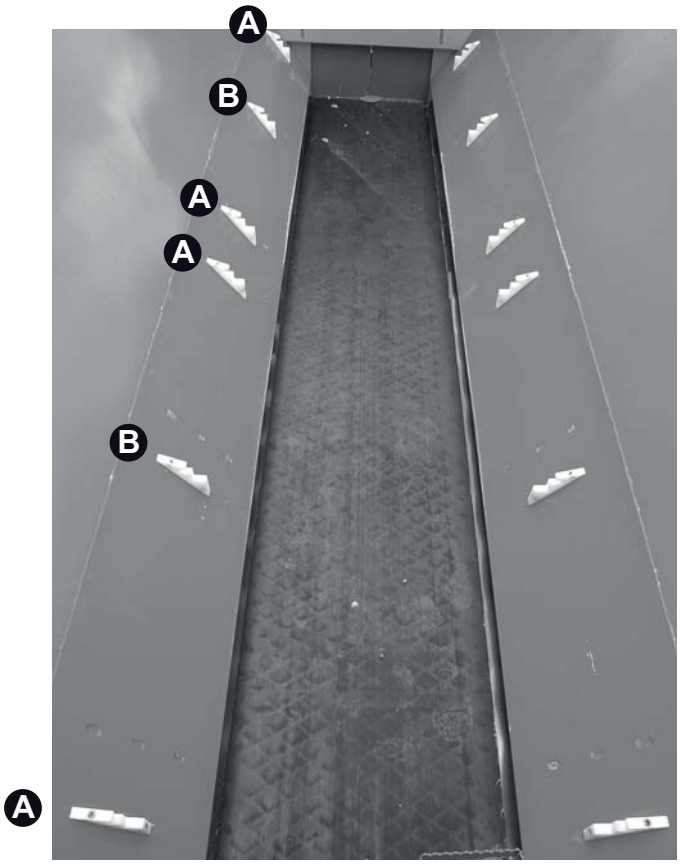


Figure 6.19: Installing the bracket of the feeder mesh

[A] Mesh support with locking mechanism
[B] Mesh support with positioning elements

1. At positions [A], mount mesh supports (4x) with locking mechanisms.
2. At positions [B], mount mesh supports (2x) with positioning elements.
   ▷ The 6 brackets are mounted horizontally and flexibly in the hopper.

3. Position the component of the feeder mesh on the mesh supports and slide it into the plastic catch [2].

The positioning elements [1] engage exactly into the feeder mesh.

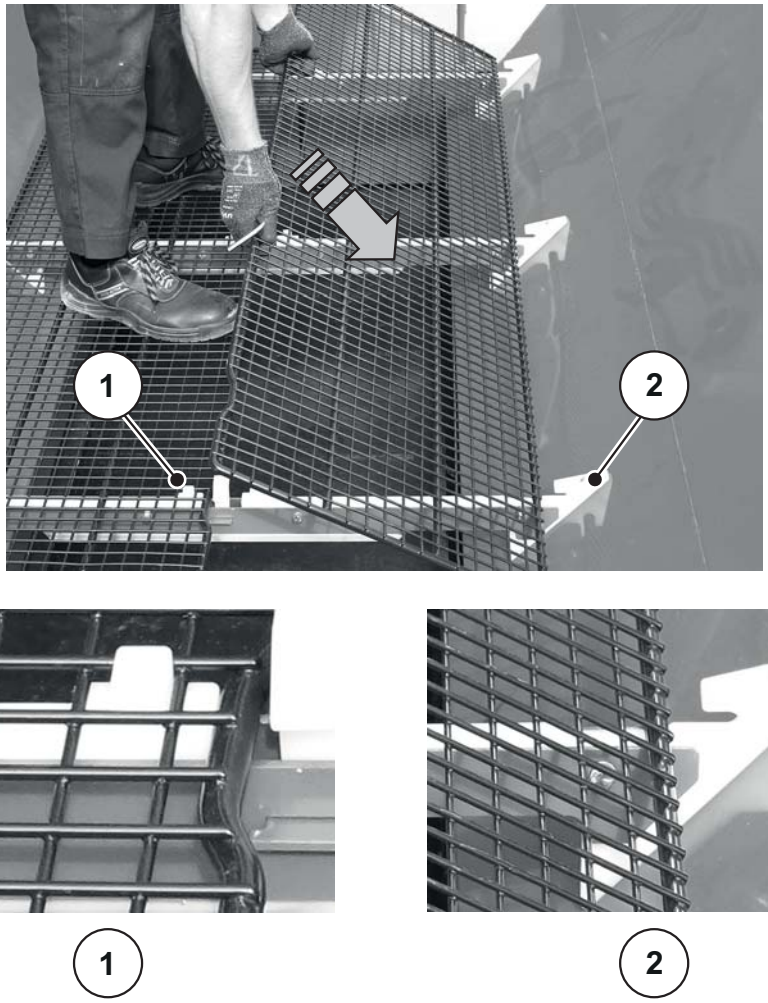


Figure 6.20: Feeder mesh assembly

[1] Positioning element
[2] Plastic catch

4. Install all components (total of 4).

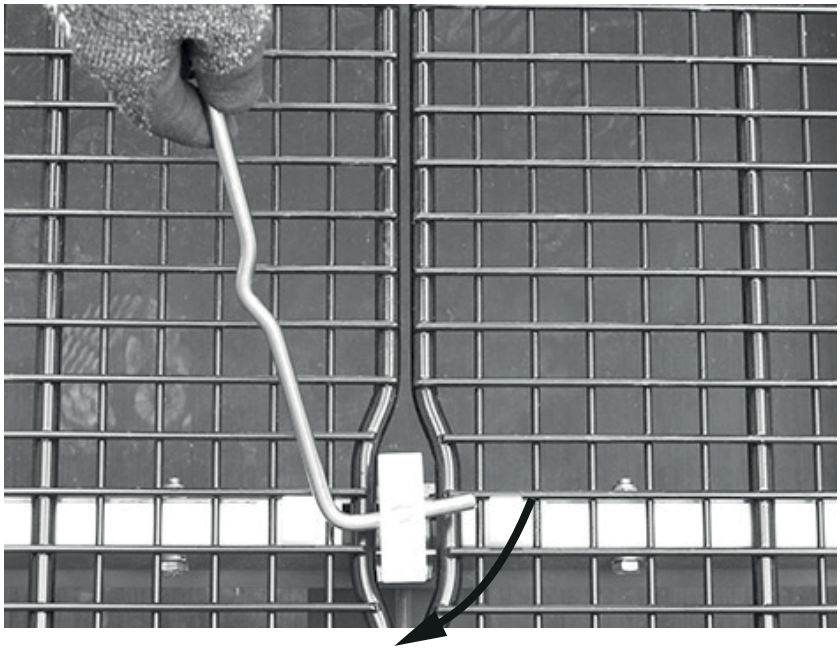


Figure 6.21: Feeder mesh locking

[1] Adjustment lever
[2] Locking mechanisms

5. Turn the locking mechanisms with the adjustment lever by 90°

Figure 6.22: Securing the feeder mesh in the hopper

6. Check if all components of the feeder mesh are assembled securely.

▷ **The feeder mesh is assembled.**

6.6.6 Fitting of the spreading unit

⚠ DANGER

Danger to life due to inattention or faulty operation.

There is a crushing hazard that may result in fatal injury for persons standing between the large area spreader and the spreading unit when the tractor approaches or the hydraulic system is actuated.

- ▶ Secure the large area spreader against rolling.
- ▶ Ensure that nobody is present between the spreading unit and the large area spreader.
- ▶ Ensure that nobody is in the hazard zone.

Requirements:

- The rear cover is open.
- The catches and quick-release clamps on each side of the machine are open.

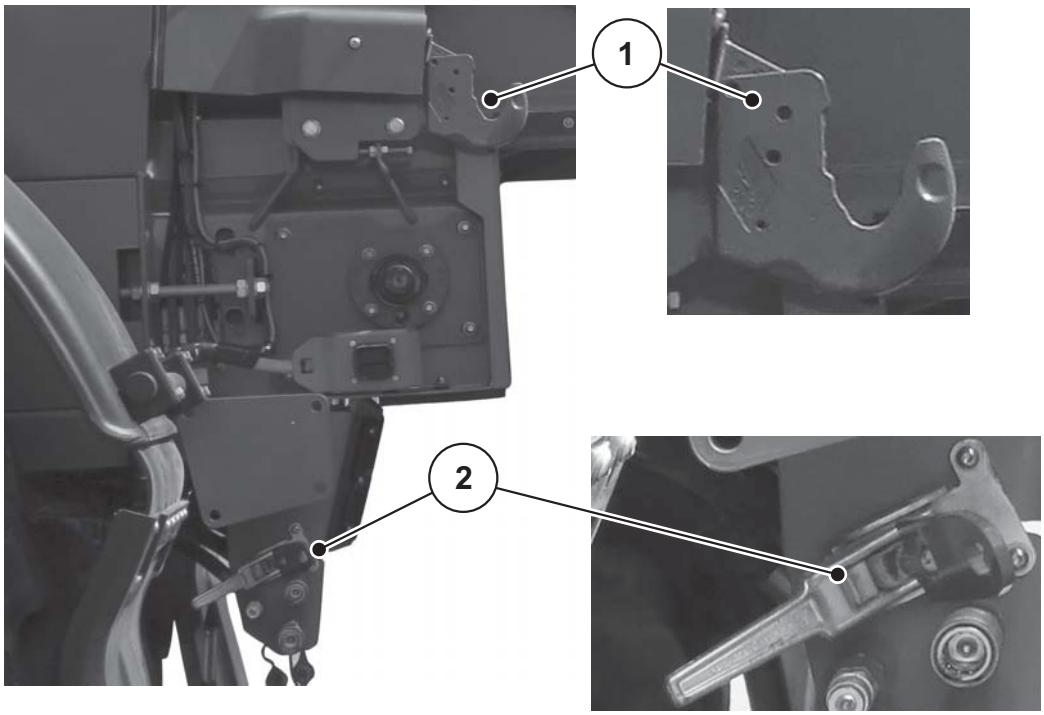


Figure 6.23: AXENT 100.1 coupling points

[1] Catches
[2] Bottom quick-release clamps

1. Park the spreading unit on a pallet.
2. Lift the spreading unit and the pallet with a forklift truck.
3. Position the forklift truck at the large area spreader.

Figure 6.24: Positioning the forklift truck

4. Mount the spreading unit in the top catch.

   Check that the spreading unit is securely mounted at the catches.
5. Drive the forklift away.
6. Close the catches.

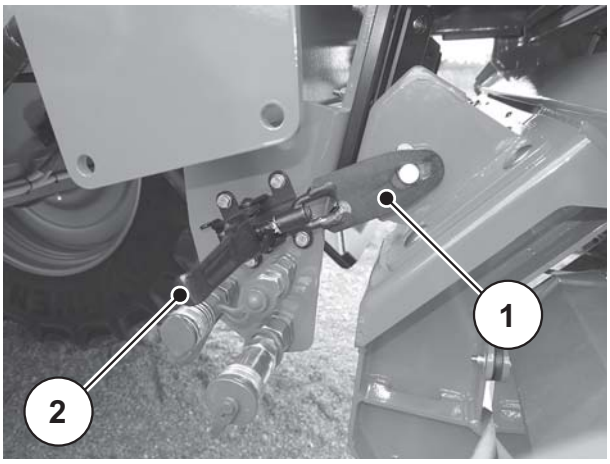


Figure 6.25: Securing the spreading unit at the base

7. Insert the lower pin of the spreading unit into the slot of the quick-release clamp [1] on each side.
8. Tighten the quick-release clamp at the handle [2].
9. Check that the machine is secured.

6.6.7 Establish the connections

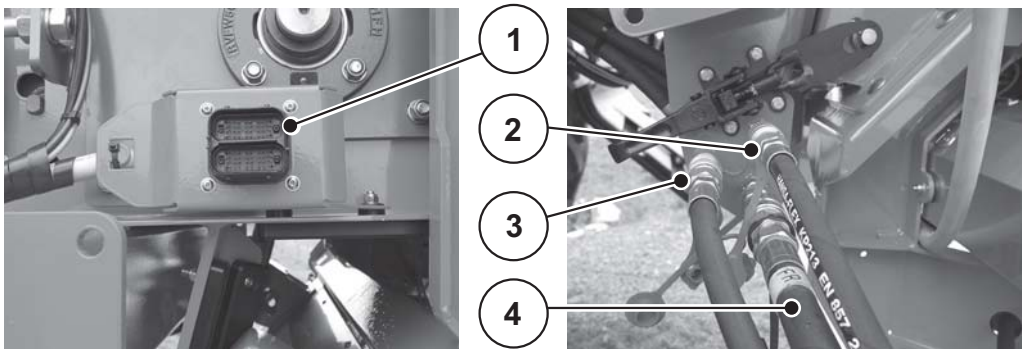


Figure 6.26: Connections

[1] Connection of the electrical lines of the spreading unit
[2] Hydraulic line of the spreading disc drive, right
[3] Hydraulic line of the spreading disc drive, left
[4] Free return

10. Connect the electric and hydraulic lines.

11. Suspend and attach the mud guard extension at the metal latch at the deflector bracket.

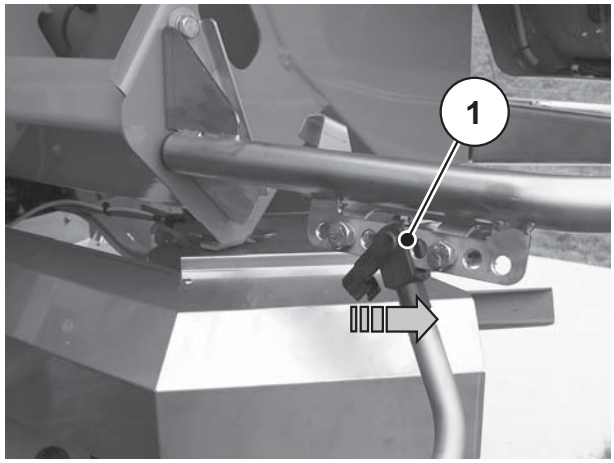


Figure 6.27: Mount the mud guard extension

6.7 Spreading unit refitting

Detachment of the spreading unit is realized in reverse order of connection.

- The rear cover is open.
- The mud guard extension is disassembled from the deflector bracket.
- The electric and hydraulic lines are disconnected from the AXENT connections.

1. Loosen the quick-release clamp [1] at the handle [2].
2. Pull out the quick-release clamp.
   ▷ The lower pin of the spreading unit is free.

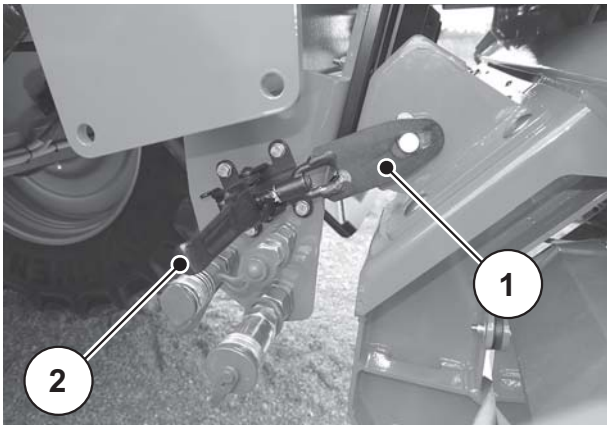


Figure 6.28: Securing the spreading unit at the base

3. Open the locking mechanism [1] of the top catches on each side.

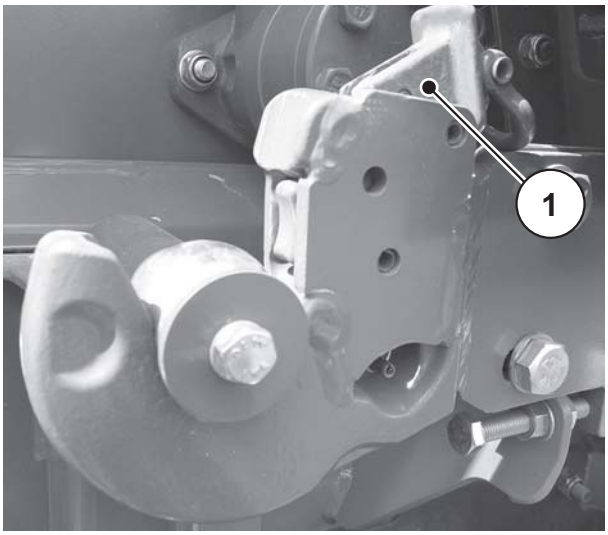


Figure 6.29: Securing the spreading unit at the base

4. Position a forklift truck with a pallet under the spreading unit.
5. Lift the spreading unit until the coupling points are free.
6. Drive away the forklift truck and park the spreading unit on the pallet at a suitable location.

Prior to attachment of the other spreading unit, assembly or disassembly steps are required according to the specific spreading unit type. Observe the following sections

- On refitting to the AXIS-PowerPack fertiliser spreading unit:
  - 6.6.4: Partition plate assembly (AXIS-PowerPack), page 62
  - 6.6.5: Feeder mesh assembly (AXIS-PowerPack), page 64
- On refitting to the LIME-PowerPack lime spreading unit:
  - 6.6.2: Feeder mesh disassembly (LIME-PowerPack), page 60
  - 6.6.3: Partition plate disassembly (LIME-PowerPack), page 61

7. Install the spreading unit as described in chapters 6.6.6: Fitting of the spreading unit, page 67 and 6.6.7: Establish the connections, page 69.

6.8 Filling the machine

⚠ WARNING

Danger caused by tilting or rolling away

During filling, the unsecured machine may tilt or roll and cause severe personal injury and property damages.

- ▶ Only fill the machine on level, solid ground.
- ▶ Ensure that the machine has been connected to the tractor before filling.
- ▶ Ensure that the parking brake is applied.

⚠ CAUTION

Inadmissible overall weight

If the admissible overall weight is exceeded, the operational and road safety of the vehicle (large area spreader and tractor) is compromised and severe damage at machinery and to the environment may occur.

- ▶ Always observe chapter 4.3.2: Technical data of standard equipment, page 33.
- ▶ Before you start filling, calculate the amount you can load.
- ▶ Comply with the permissible overall weight.

NOTICE

Prior to filling, make sure that the pre-metering slides and cleaning flap are closed.

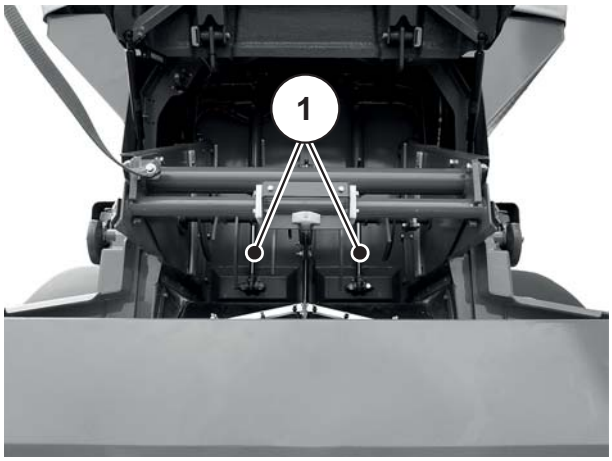


Figure 6.30: Pre-metering slide in closed position

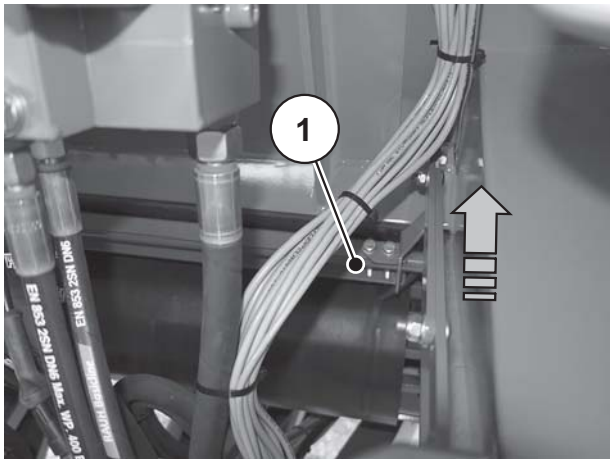


Figure 6.31: Cleaning flap in closed position, front in direction of travel

Requirements:

- The hydraulic system is switched on.

1. Hydraulically open the hopper cover of the machine.

2. Evenly fill the machine. For this purpose, use a shovel loader or an auger.

3. Visually inspect the filling level in the hopper.

4. After filling is completed, close the hopper cover.

▷ **The machine is filled.**

6.9 Checking the filling level

⚠ WARNING

Risk of injury due to falling off the platform

The platform is located more than 1.50 m above the ground. There is a risk of falling on the side of the steps. Serious injury is possible.

- ▶ Always be extremely careful when moving on the platform.
- ▶ Always keep the platform clean.

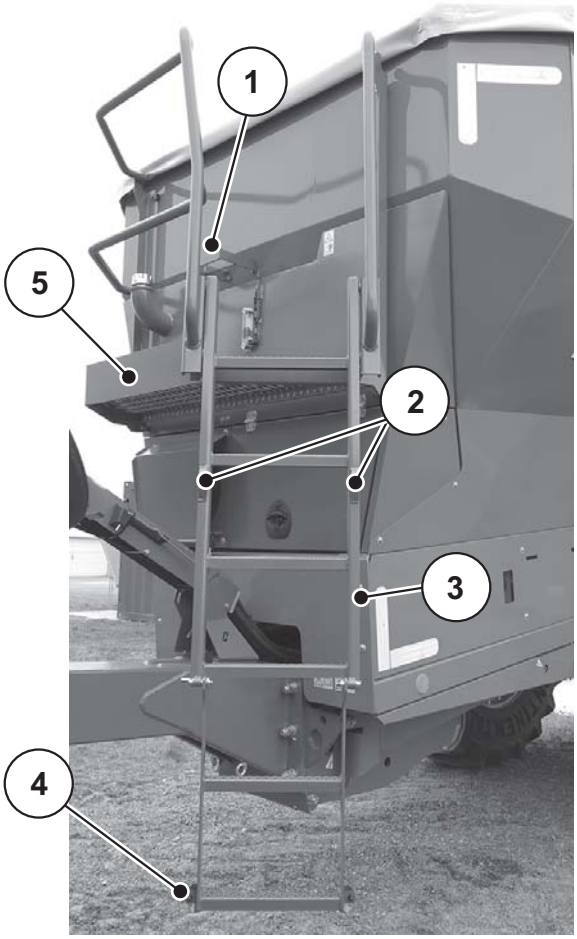


Figure 6.32: Filling level check

[1] Step (use for maintenance work inside the hopper only)
[2] Snap locking mechanism
[3] Movable steps
[4] Snap pin of the folding steps
[5] Platform

Operating the steps

1. Push the adjustable steps upwards and push the catches [1] forward by hand until the pin [2] is free.

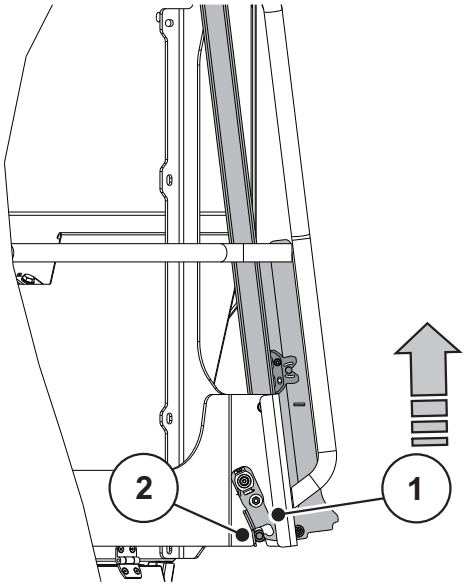
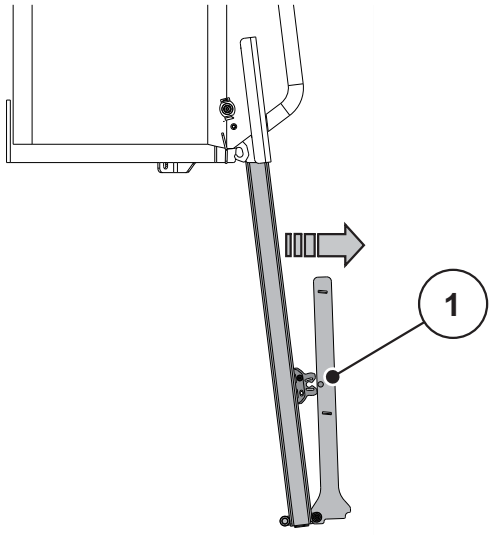


Figure 6.33: Lower the upper part of the steps

2. Slowly lower the movable steps.



3. Pull the foldable steps until the snap bolts [1] are released.
4. Fold the steps down.

Figure 6.34: Folding out the bottom part of the steps

NOTICE

Only enter the steps if the following requirements have been met:

- The steps have been lowered to the lowest position.
- The foldable steps have been folded down.

Folding in the steps in transport position

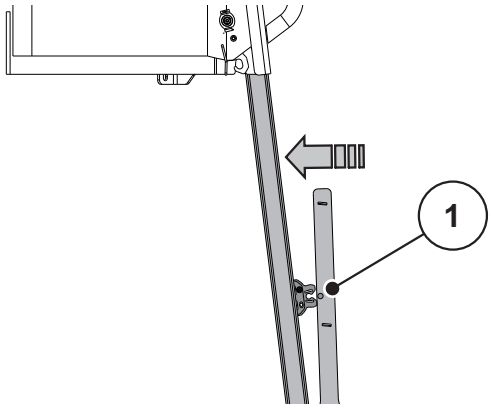


Figure 6.35: Fold in the steps

5. Fold the lower part of the steps upwards.
6. Lock the snap bolts [1] in the groove of the snap fits.

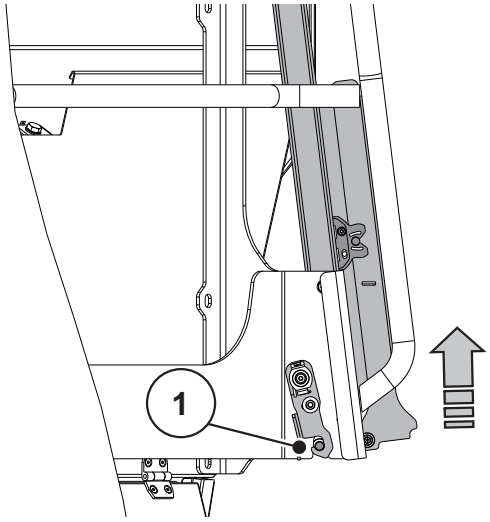


Figure 6.36: Secure the sliding slide

7. Push the movable steps upwards through the bar with your hand until the bolt [1] engages in the hook.

▷ **The steps are secured.**

8. **Prior to every use** check the operational and road safety of the overall vehicle according to the information in chapter 3: Safety, page 5.

6.10 Setting the manual brake force regulator

⚠ DANGER

Danger to life due to defective braking system

There is a danger life if the braking system is used incorrectly or is defective. The machine may accidentally roll away or tilt and over-run persons.

- ▶ Before every drive, ensure that the manometer in the driver's cabin shows the minimum pressure required by the tractor manufacturer.
- ▶ Check the routing of the hoses. The hoses must not rub against other parts.

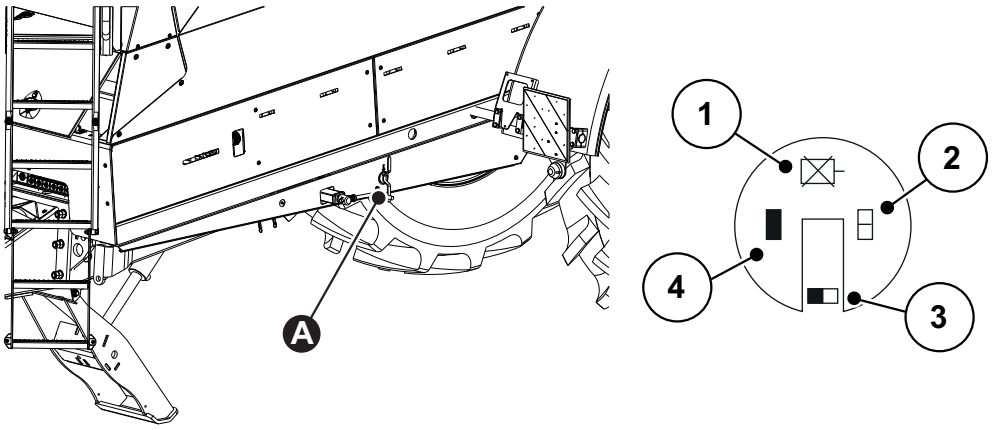


Figure 6.37: Setting the brake-force distributor

[A] Brake force regulator, left side in direction of travel
[1] Release position
[2] Empty
[3] Half load
[4] Full load

- Adjust the brake force regulator settings to the filling level of the machine.

6.11 Camera for rear view monitoring

The rear view camera offers free view on the area behind the machine.

Check the correct setting of the camera at the ISOBUS terminal.

NOTICE

The lower third of the rear view camera has to show the deflector bracket.

As necessary, adjust the monitored section. This requires the support by a second person observing the current view of the camera at the ISOBUS terminal in the tractor cabin.

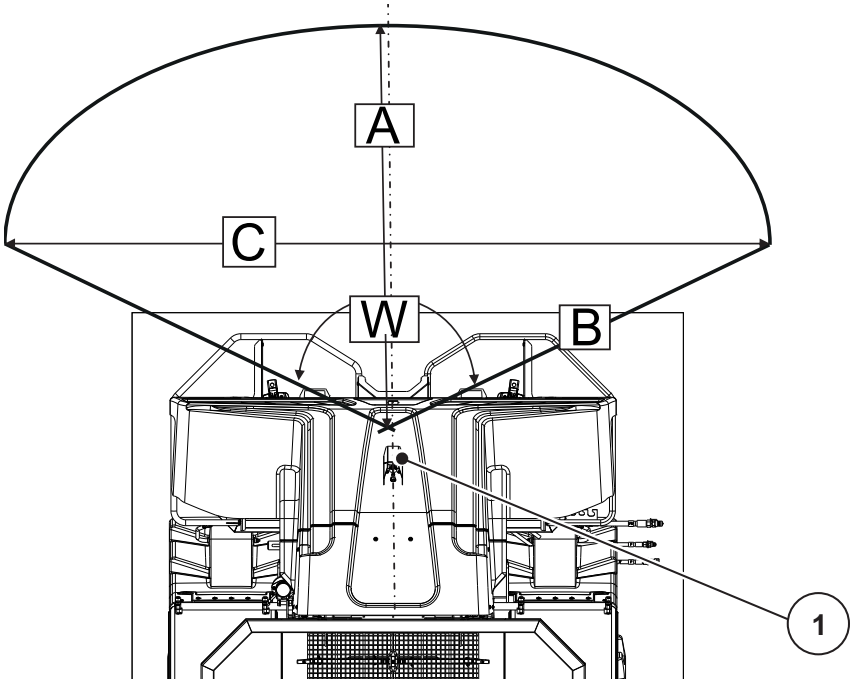


Figure 6.38: Field of view of the rear view camera

[A] Rear visibility range: approx. 7 m
[B] Radius: 5.80 m
[C] Field of vision diameter to the left and right: 10 m
[W] Viewing angle: 120°
[1] Rear view camera

Figure 6.39: Rear view camera screenshot

7 Spreading operation

7.1 General Information

NOTICE

The service life of the machine mainly depends on your manner of driving.

- Reduce your speed on uneven ground.
- Carefully pass the headlands.
- Avoid sudden turns when driving uphill or downhill or across a slope.
  - By repositioning the gravity centre, there is a risk of toppling over.
- Special care is to be particularly applied when driving on uneven, soft ground (e.g. when entering fields, kerbs).

The modern technology and design of our AXENT 100.1 large area spreader and comprehensive, continuous testing at our factory test system ensure perfect spreading patterns in every application.

Despite the fact that we have manufactured the machine with utmost diligence, deviations in the application rate or possible faults cannot be excluded, even when complying with the intended use.

The reasons for this may be:

- Changes in the physical characteristics of the fertiliser and/or the lime (e.g. deviating grain size distribution, varying density, grain form and surface, treatment, sealing, humidity)
- Clumping and damp fertiliser or lime
- Clogging or bridging (e.g. through foreign particles, moist or inappropriate fertiliser)
- Wind drift: stop spreading at high wind speeds
- Uneven terrain
- Wear of wear parts
- Damages caused by external influences
- Insufficient cleaning and corrosion protection
- Incorrect drive speed and forward speed
- Incorrect machine settings

Please ensure the correct settings of the machine. Even a minor deviation from the correct setting may lead to a significant impairment of the spread pattern. Therefore, before each operation and during operation, check the correct functioning of your machine and ensure that the application accuracy is sufficient.

Particularly hard types of fertiliser (e.g. calcium ammonium nitrate, kieserite) increase wear.

In combination with the AXIS-PowerPack fertiliser spreading unit, **ALWAYS** use the feeder mesh to prevent clogging, e.g. due to foreign bodies or fertiliser lumps.

In combination with the LIME-PowerPack lime spreading unit, **ALWAYS** disassemble the feeder mesh to prevent the formation of bridges.

Claims for damages other than for damage to the machine itself will not be accepted.

This also means that no liability will be accepted for damage resulting from spreading errors.

7.2 Closing the rear cover

The rear cover is important safety equipment for safe machine operation; See also “Function of safety equipment“ on page 20. Overloading cannot be realized if the rear cover is open.

The rear cover is equipped with a safety switch. The safety switch reports the open or closed position of the rear cover to the machine control unit. If the rear cover is open, all actuators controlled via the machine control unit are stopped (conveyor belt, pre-metering slide, comb roller, hopper cover).

⚠ WARNING

Risk due to rotating components

The machine control unit only deactivates the functions of the AXENT 100.1 large area spreader. Via the rotating spreading discs of the fitted spreading unit, the spreading material is ejected. This may cause injury.

- ▶ Ensure that nobody is in the hazard zone.
- ▶ Prior to any check at the machine, always switch off the functions of the spreading unit.

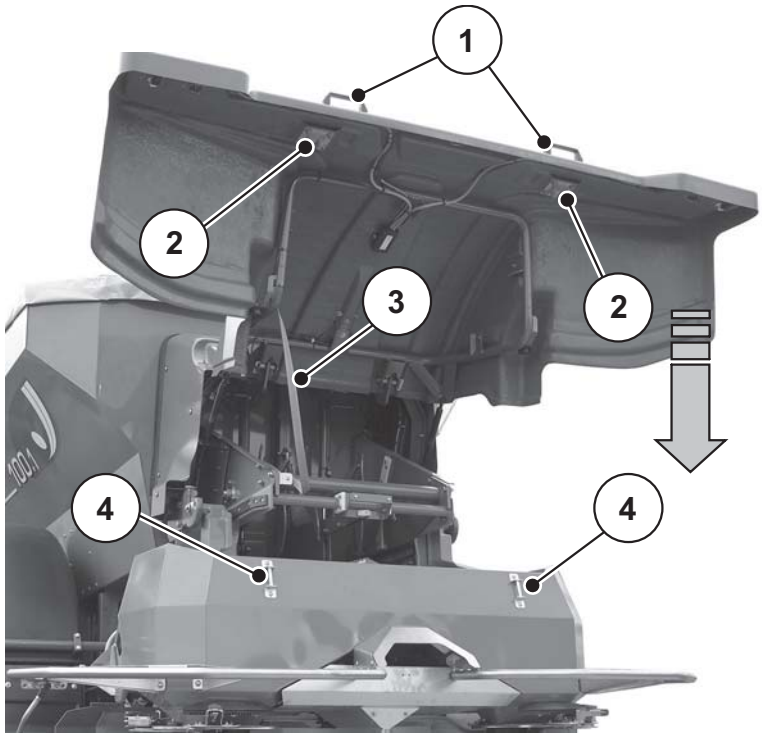


Figure 7.1: Closing the rear cover

[1] Handles
[2] Plastic clips
[3] Tie cable
[4] Pin

1. Pull the tie cable by hand.
   ▷ The rear cover closes downwards.

Figure 7.2: Pull the tie cable

2. Grip the rear cover at the handles and slowly lower it.

Figure 7.3: Grip the rear cover at the handles

3. Push the rear cover with the handles onto the spreading unit until the plastic clips engage.
   ▷ The safety switch is operated.

▷ **The machine is ready for operation.**

NOTICE

For further information on machine control and indication of the rear cover position, refer to the AXENT ISOBUS machine control unit operator's manual.

7.3 Conveyor belt speed adjustment

The conveyor belt is started up and stopped automatically. Via the machine control system, the status of the conveyor belt can be checked at the screen.

NOTICE

The electronic conveyor belt control is described in a separate operator's manual for the electronic control unit. This operator's manual is an integral part of the AXENT ISOBUS electronic control unit.

NOTICE

If the speed of the conveyor belt is too low in comparison with the application rate set at the spreading unit, there is no notification that the spreading unit hopper is full. This may lead to spreading errors or under-fertilization in the spread fields as the hopper may be emptied.

- Increase the speed of the conveyor belt.

7.4 Fertiliser spreading (AXIS-PowerPack)

7.4.1 Spreading operation with AXENT 100.1

The intended use of the machine includes compliance with the operating, maintenance, and service conditions in accordance with the manufacturer specifications. **The spreading operation** therefore always includes **preparation** and **cleaning/maintenance**.

- Carry out spreading operations as described below.

Preparation	
● Fitting the large area spreader at the tractor	Page 50
● Assembling the feeder mesh and partition plate	Page 62 and following
● Mounting the fertiliser spreading unit at the large area spreader	Page 59
● Closing the pre-metering slide	
● Filling the machine	Page 71
● Adjust machine settings (working width, application rate, etc.)	Refer to the operator's manual of the AXENT ISOBUS and AXIS H ISOBUS control units
● Travel to the spreading location	
Spreading operation	
● Engage the PTO shaft	
● Opening the pre-metering slide and starting spreading	Refer to the operator's manual of the AXENT ISOBUS and AXIS H ISOBUS control units
● Starting spreading	
● Finishing spreading operations and closing the pre-metering slide	
● Disengage the PTO shaft	
Cleaning/maintenance	
● Discharging residual material	
● Cleaning and maintenance	Chapter 9
● Parking the large area spreader	Page 107

7.4.2 Information on the fertiliser chart

The values in the fertiliser chart have been determined on the RAUCH test system.

The used fertiliser materials have been purchased from the fertiliser manufacturers or from dealers. Experience shows that, due to storage, transportation and other reasons, the fertiliser materials at your disposal - even with identical specification - might exhibit a different spreading behaviour.

This means that the machine settings specified in the fertiliser charts may result in a different spreading volume and a poorer fertiliser distribution.

Therefore, observe the following instructions:

- Always check the actual application rate discharged by performing a calibration test.
- Check the working width of the fertiliser distribution with a practice test kit (optional equipment).
- Only use fertilisers listed in the fertiliser chart.
- Please contact us if you need to use a fertiliser that is not included in the fertiliser chart.
- Observe the setting values exactly. Even a slightly incorrect setting may adversely affect the spreading pattern.

When using urea, particular attention is to be paid to the following:

- Due to a great number of fertiliser imports, urea is available in a wide variety of different qualities and grain sizes. It may therefore be required to adjust the settings of the spreader.
- Urea is more sensitive to wind and absorbs more moisture than other fertilisers.

NOTICE

The operator is responsible for making the correct spreader adjustments according to the fertiliser material in use.

We point out specifically that we do not accept any liability for damage resulting from incorrect spreader settings.

7.4.3 Setting the machine via ISOBUS terminal

The necessary settings for fertiliser spreading are made at the ISOBUS terminal.

Example of field spreading during normal fertilising:

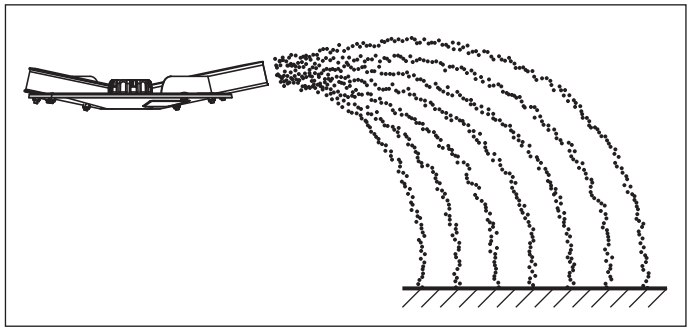


Figure 7.4: Field spreading during normal fertilisation

During field spreading in normal fertilisation mode, a symmetrical spreading pattern is produced. If the spreader is correctly set (see information in the fertiliser chart), the fertiliser is evenly spread over the field.

1. Activate the lime spreading function in the AXIS H ISOBUS electronic machine control unit.
2. Enter the values from the fertiliser chart in the **Fertiliser settings** menu:
   - Application rate
   - Working width
   - Drop point
   - Normal speed

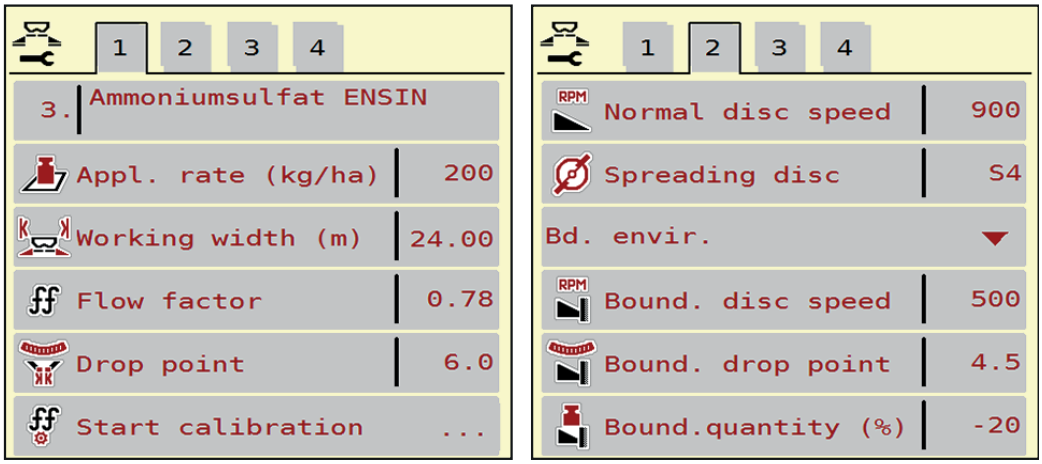


Figure 7.5: Fertiliser settings via the AXIS H ISOBUS machine control unit

3. Follow the instructions of the AXIS H ISOBUS operator's manual.

Example of limited border spreading during normal fertilisation:

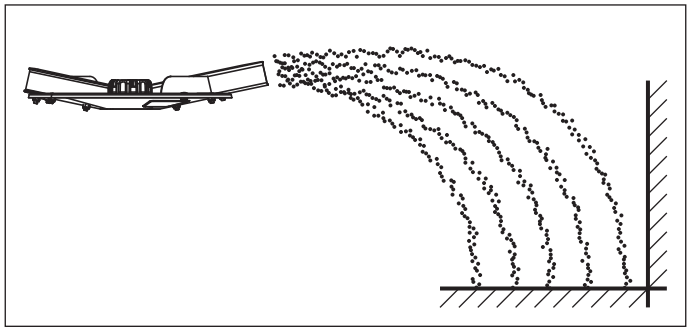


Figure 7.6: Limited border spreading during normal fertilisation

During limited border spreading in normal fertilisation mode, almost no fertiliser goes beyond the field boundary. Under-fertilisation at the field boundary must be accepted in this case.

1. Activate the lime spreading function in the AXIS H ISOBUS electronic machine control unit.
2. Enter the values from the fertiliser chart in the **Fertiliser settings** menu:
   - Application rate
   - Working width
   - Drop point
   - Boundary spreading mode: Limited border selection
   - Application rate reduction

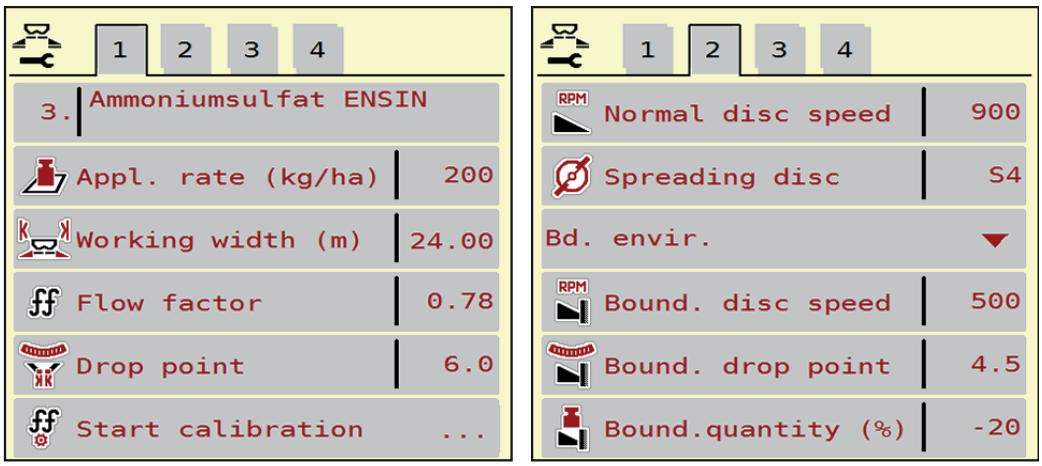


Figure 7.7: Fertiliser settings for limited border spreading, AXIS H ISOBUS

NOTICE

The display at the screen may vary depending on the configured software version.

- Observe the operator's manual of the AXIS H ISOBUS electronic machine control unit.

3. In the **main menu**, activate the limited border spreading function.
   ▷ The settings in the **Fertiliser settings** menu are applied.
   ▷ The currently selected mode is displayed in the top of the operating screen.
4. Follow the instructions of the AXIS H ISOBUS operator's manual.

Example of full border spreading during normal fertilisation mode:

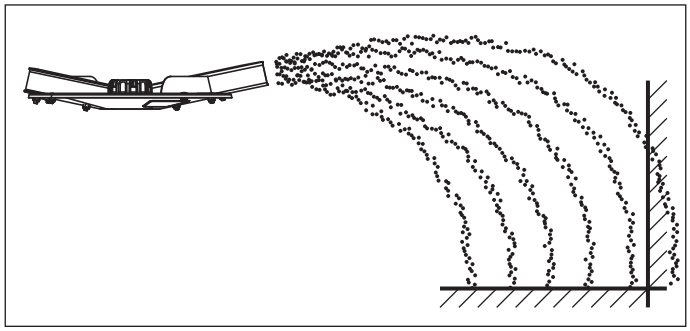


Figure 7.8: Full border spreading during normal fertilisation

Full border spreading in normal fertilisation mode refers to a spreading technique in which a bit more fertiliser lands beyond the boundary of the field. Therefore, there is just a slight under-fertilisation at the field boundary.

1. Activate the lime spreading function in the AXIS H ISOBUS electronic machine control unit.
2. Enter the values from the fertiliser chart in the **Fertiliser settings** menu:
   - Application rate
   - Working width
   - Drop point
   - Boundary spreading mode: Full border selection

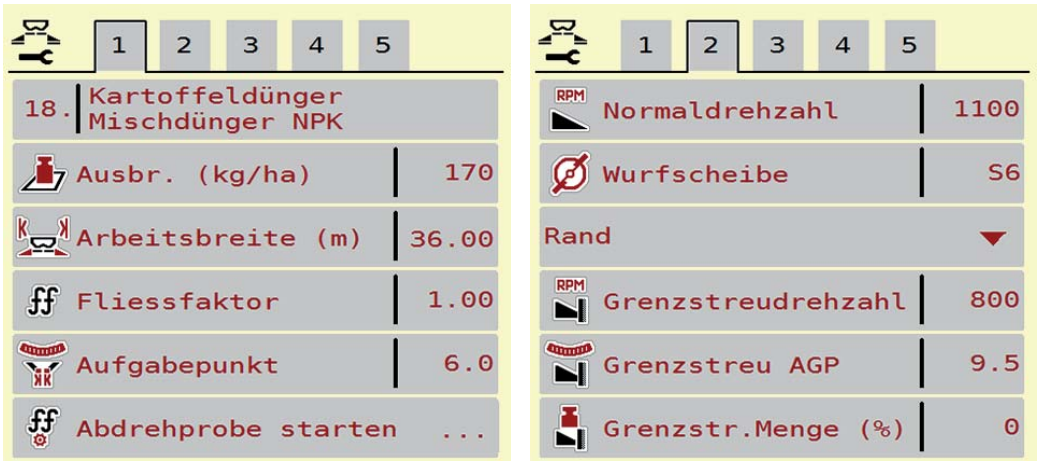


Figure 7.9: Fertiliser settings for full border spreading, AXIS H ISOBUS

NOTICE

The display at the screen may vary depending on the configured software version.

- Observe the operator's manual of the AXIS H ISOBUS electronic machine control unit.

3. In the **main menu**, activate the full border spreading function.
   ▷ The settings in the **Fertiliser settings** menu are applied.
   ▷ The currently selected mode is displayed in the top of the operating screen.
4. Follow the instructions of the AXIS H ISOBUS operator's manual.

7.4.4 Setting the working width

Selecting the correct spreading disc

Various spreading discs are available for realization of the working width depending on the fertiliser type.

NOTICE

With 5 different spreading discs, a working width of 12 - 50m can be realized.

	Spreading disc type				
	S4	**S6**	**S8**	**S10**	**S12**
Working width	18 - 28 m	24 - 36 m	30 - 42 m	36 - 48 m	42 - 50 m

There are two different, permanently installed spreader vanes on every spreading disc. The spreader vanes are marked according to their model.

⚠ WARNING

Risk of injury from rotating spreading discs!

Contact with the spreading equipment (spreading discs, spreader vanes) may injure, crush or cut off body parts. Body parts or objects may be caught and pulled in.

▶ Do not remove deflectors mounted on the spreader hopper.

Spreading disc type	Spreading disc left	Spreading disc right
S4 uncoated	S4-L-200 S4-L-270	S4-R-200 S4-R-270
S4 coated (optional)	S4-L-200 VxR S4-L-270 VxR	S4-R-200 VxR S4-R-270 VxR
S6 coated	S6-L-255 VxR S6-L-360 VxR	S6-R-255 VxR S6-R-360 VxR
S8 coated	S8-L-390 VxR S8-L-380 VxR	S8-R-390 VxR S8-R-380 VxR
S10 coated	S10-L-340 VxR S10/S12-L-480 VxR	S10-R-340 VxR S10/S12-R-480 VxR
S12 coated	S12-L-360 VxR S10/S12-L-480 VxR	S12-R-360 VxR S10/S12-R-480 VxR

NOTICE

With the VxR coating, longer lifetimes of the spreading vanes can be achieved.

Removing the spreading discs

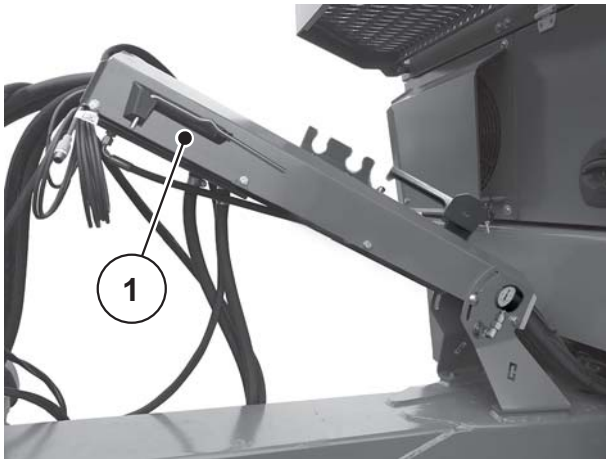
⚠ DANGER

Danger from running motor

Working on the large area spreader with the engine running may result in serious injury caused by mechanical components and escaping fertiliser.

Never remove or mount the spreading discs with the tractor engine running.

▶ Switch off the tractor's engine. Remove the ignition key.



[1] Adjustment lever (left in direction of travel, hose bracket)

Figure 7.10: Adjustment lever

Proceed for both sides (left and right) as follows.

1. Remove the adjustment lever from the bracket.
2. Loosen the cap nut of the spreading disc by means of the adjustment lever.

Figure 7.11: Loosen cap nut

3. Unscrew the cap nut.
4. Remove the spreading disc from the hub.
5. Put the adjustment lever back into the specified bracket.

Figure 7.12: Unscrew the cap nut

Mounting the spreading discs

Requirements:

- The engine and the AXENT ISOBUS control unit are switched off and locked to prevent accidental starting.

Mount the left spreading disc on the left side in the direction of travel and the right spreading disc on the right side in the direction of travel. Make sure that the left and right spreading discs are not reversed.
The following procedure is for mounting the left-hand spreading disc. The right-hand spreading disc is to be mounted according to these instructions as well.

1. Place the left-hand spreading disc on the left-hand spreading disc hub. Make sure that the spreading disc is evenly placed on the hub (remove dirt if necessary).

NOTICE

The pins on the spreading disc holders have different positions on the left and right side. The correct spreading disc is the one that fits precisely into the spreading disc holder.

2. Carefully position the cap nut (do not tilt).
3. Tighten the cap with 25 Nm until it is hand tight, do not use the adjustment lever.

NOTICE

The cap nuts have an internal catching mechanism that prevents them from coming loose. The catching mechanism must be noticeable while tightening, otherwise, the cap nut is worn and must be replaced.

4. Check that there is clearance between the spreader vanes and the outlet by turning the spreading discs by hand.

7.4.5 Adjusting the drop point

NOTICE

The AXENT 100.1 large area spreader is equipped with an electronic drop point adjustment.

The electronic drop point adjustment is described in a separate operator's manual for the electronic controls. This operator's manual is an integral part of the electronic control unit.

With the selection of the spreading disc type, a particular range for the working width is defined. By altering the drop point, the working width can be accurately set and adjustments to different fertiliser types can be made.

The fertiliser drop point is adjusted and set using the electronic controls.

- Adjusting the upper scale plate in the direction of smaller numbers: The fertiliser is ejected sooner. This results in spreading patterns for smaller working widths.
- Adjusting the upper scale plate in the direction of larger numbers: The fertiliser is ejected later and spread more towards the outside into the overlap zones. This results in spreading patterns for larger working widths.

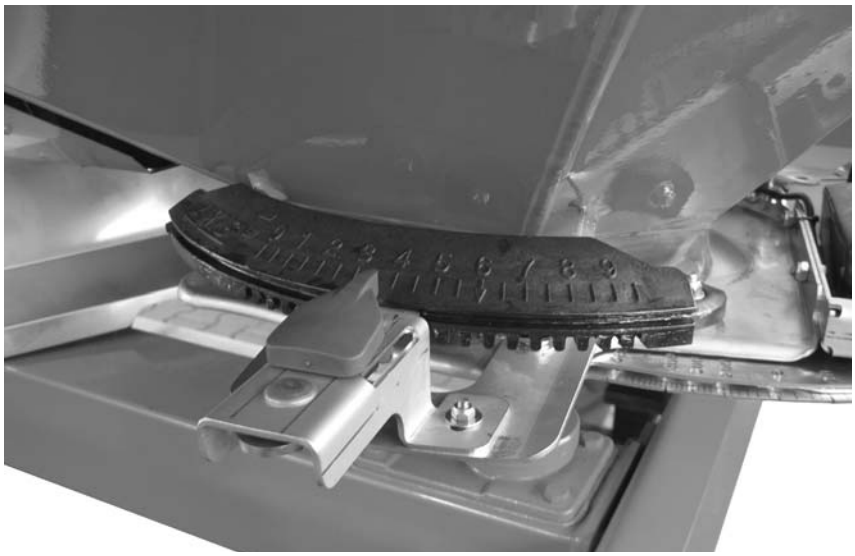


Figure 7.13: Drop point gauge

⚠ CAUTION

Risk of material damage due to stuck or blocked indicator

The fertiliser drop point is adjusted and set using the electronic controls. If the indicator sticks, the electrical adjusting cylinders can be damaged.

▶ Never push the indicator forwards or block it.

7.4.6 Adjusting the application rate

NOTICE

The AXENT 100.1 large area spreader is equipped with an electronic metering slide actuator for application rate adjustment at the fertiliser spreading unit.

The electric metering slide actuation is described in a separate operator's manual for the electronic controls. This operator's manual is an integral part of the AXIS H EMC ISOBUS electronic control unit.

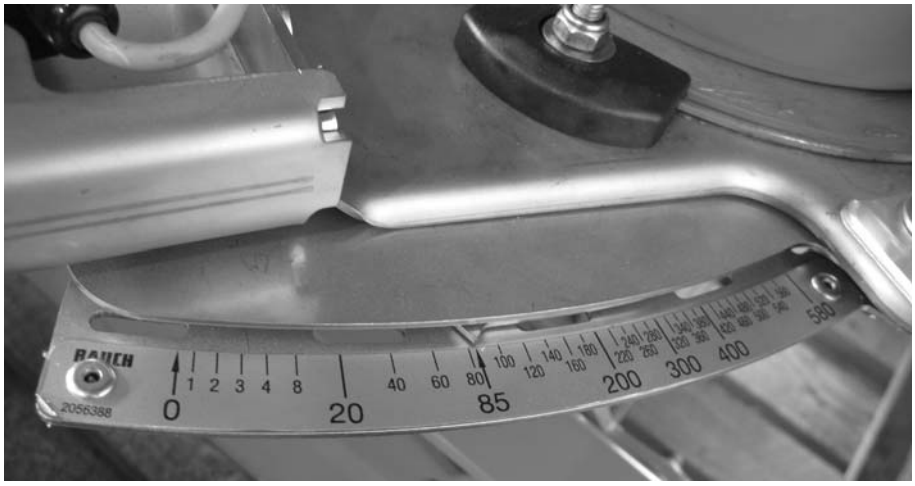


Figure 7.14: Scale for setting the spreading quantity

NOTICE

The application rate of the AXENT 100.1 large area spreader is set electrically via the electronic control unit.

- See also the operator's manual of the electronic control unit.

7.4.7 Spreading at the headland

In order to achieve a good fertiliser distribution in the headlands, a precise arrangement of the tramlines is essential.

Limited border spreading

During limited border spreading in the headlands (disc speed reduction, drop point adjustment and application rate reduction).

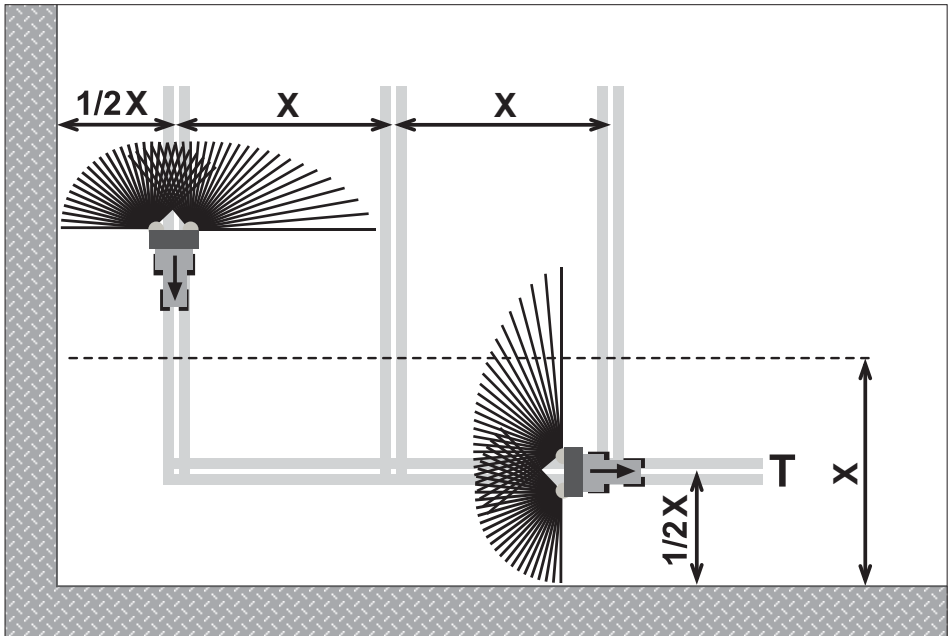


Figure 7.15: Limited border spreading

[T] Headland tramline
[X] Working width

- Place the headland tramline [T] at a distance of half the working width [X] from the edge of the field.

Normal spreading in or out of the headland tramline

When continuing spreading in the field after headland tramline spreading, please note the following:

- Switch off limited border spreading.

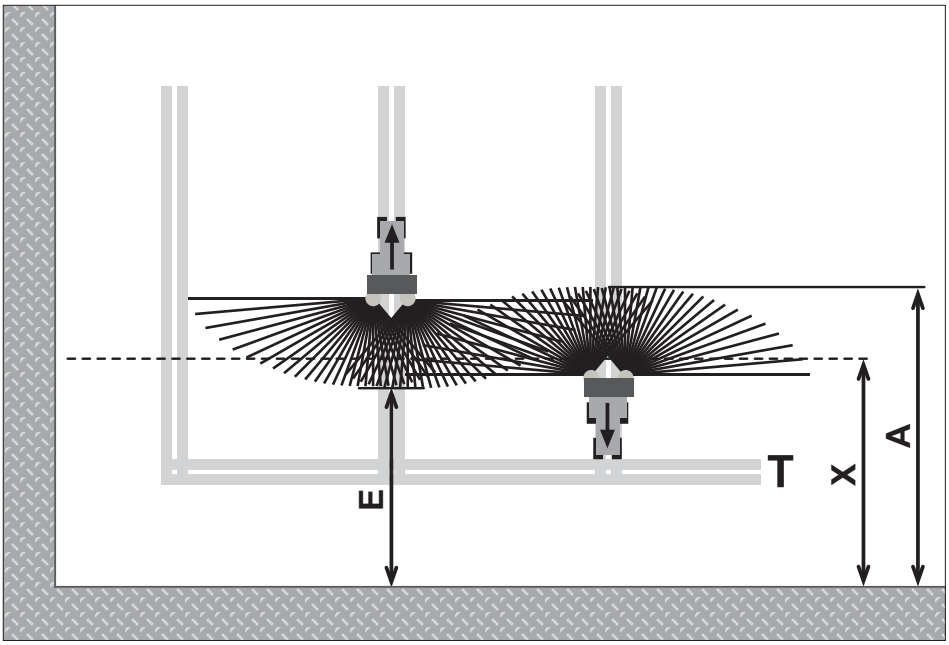


Figure 7.16: Normal spreading

[A] End of spreading fan when spreading in the headland tramline
[E] End of spreading fan when spreading in the field
[T] Headland tramline
[X] Working width

The metering slides must be opened or closed at different distances to the field border of the headland when travelling backwards and forwards.

Driving out of the headland tramline

- **Open** the metering slides if the following requirement is met:
  - The end of the spreading fan on the field [E] is at approx. half of the working width + 4 to 8 m from the field boundary of the headland.

The tractor is then located at different distances in the field, depending on the spreading distance of the fertiliser.

Driving into the headland tramline

- Close the metering slides **as late as possible**.
  - The end of the spreading fan should ideally come to lie on the field [A] at a distance of approx. 4 to 8 m further than the working width [X] of the headlands.
  - This cannot always be achieved, depending on the spreading distance of the fertiliser and the working width.
- Alternatively, the headland track can be passed or a 2nd headlands track can be prepared.

Follow these instructions in order to ensure an environmentally friendly and economical working method.

7.4.8 Spreading sideways to the slope

When driving on the side of the slope, the large area spreader may drift. Kingpin steering (optional equipment) may be applied to compensate sloping grounds. For this purpose, use the offset function at the steering computer.

NOTICE

For operation of the steering computer, please observe the kingpin steering operator's manual.

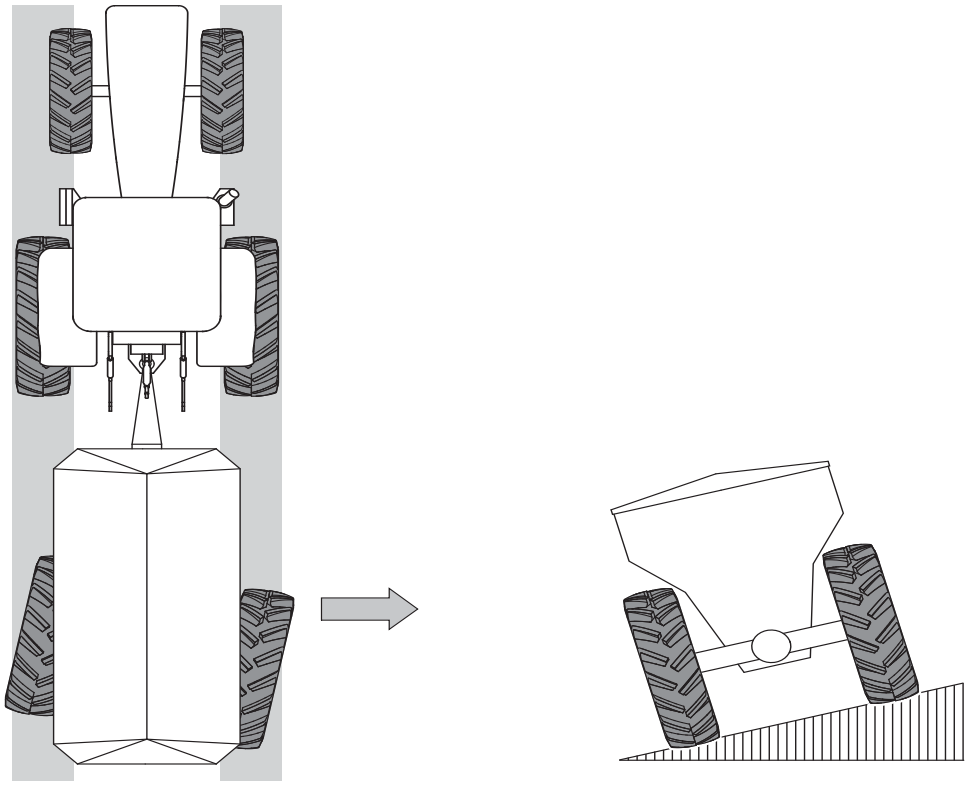


Figure 7.17: Kingpin steering (optional equipment)

7.5 Lime spreading (LIME-PowerPack)

7.5.1 Spreading operation with AXENT 100.1

The intended use of the machine includes compliance with the operating, maintenance, and service conditions in accordance with the manufacturer specifications. **The spreading operation** therefore always includes **preparation** and **cleaning/maintenance**.

- Carry out spreading operations as described below.

Preparation	
● Fitting the large area spreader at the tractor	Page 50
● Disassemble feeder mesh and partition plate	
● Fitting the lime spreading unit at the large area spreader	Page 50
● Closing the pre-metering slide	
● Filling the machine	Page 71
● Machine settings (density, forward speed, working width, application rate, etc.)	Refer to the operator's manual of the AXENT ISOBUS control unit
● Travel to the spreading location	
Spreading operation	
● Engage the PTO shaft	
● Opening the pre-metering slide and starting spreading	
● Starting spreading	
● Finishing spreading operations and closing the pre-metering slide	
● Disengage the PTO shaft	
Cleaning/maintenance	
● Discharge residual material	
● Cleaning and maintenance	Chapter 9
● Parking the large area spreader	Page 107

7.5.2 Adjusting the drop point

The lime spreading unit is set to the neutral position for an even distribution of the lime ex factory.

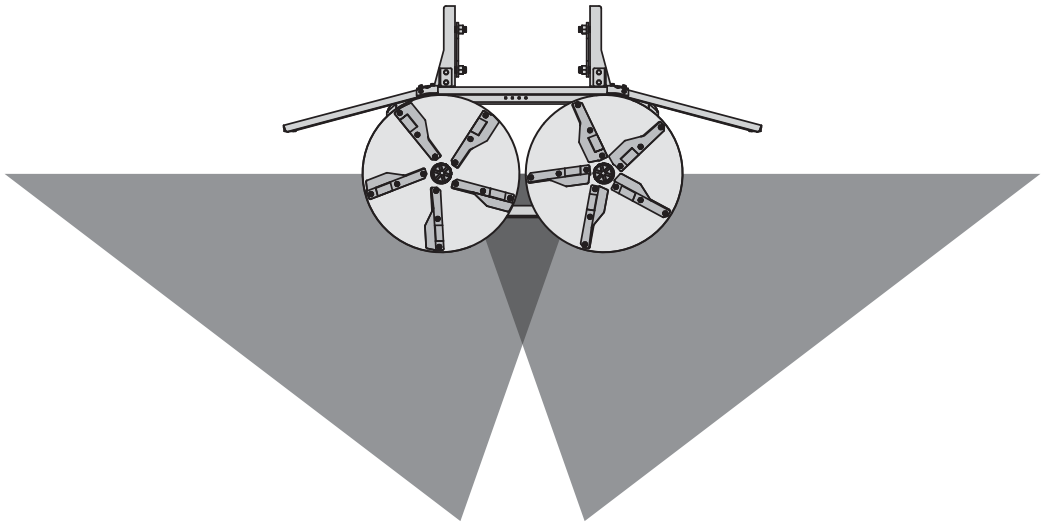


Figure 7.18: Normal spreading pattern, drop point in neutral position

- Both marks for the neutral position are central.

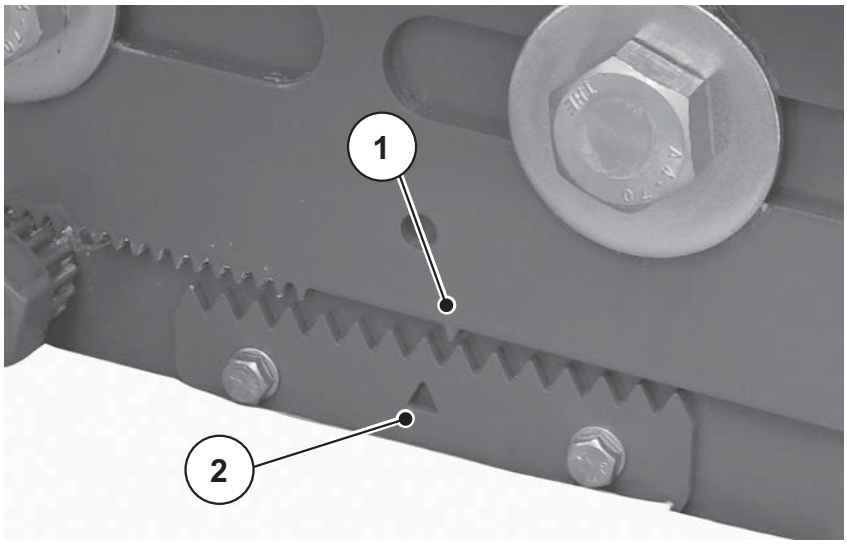


Figure 7.19: Drop point in neutral position

[1] Marking notch
[2] Neutral position mark

NOTICE

- Tightening torque of the fastening screws: 300 Nm

Optimisation of the spreading pattern according to the characteristics of the lime type

Manually adjust the drop point by moving the movable part of the lime spreading unit forwards or backwards.

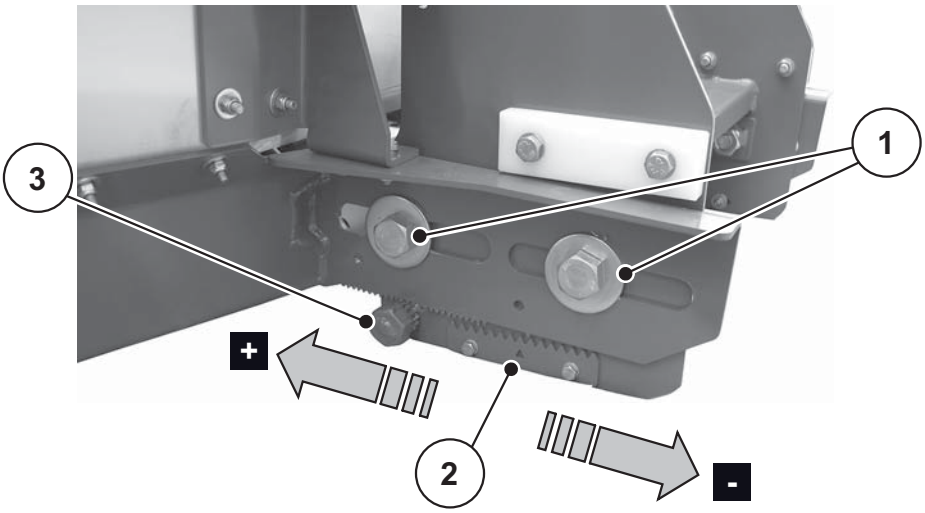


Figure 7.20: Adjusting the drop point

[1] Fastening screws
[2] Neutral position mark
[3] Adjustment screw

- Loosen the fastening screws [1] with an SW 36 spanner on each side.

Insufficient lime in the centre:

1. Rotate the adjustment screw [3] by means of an SW 36 spanner in order to move the movable part towards the rear [+] in the direction of travel.

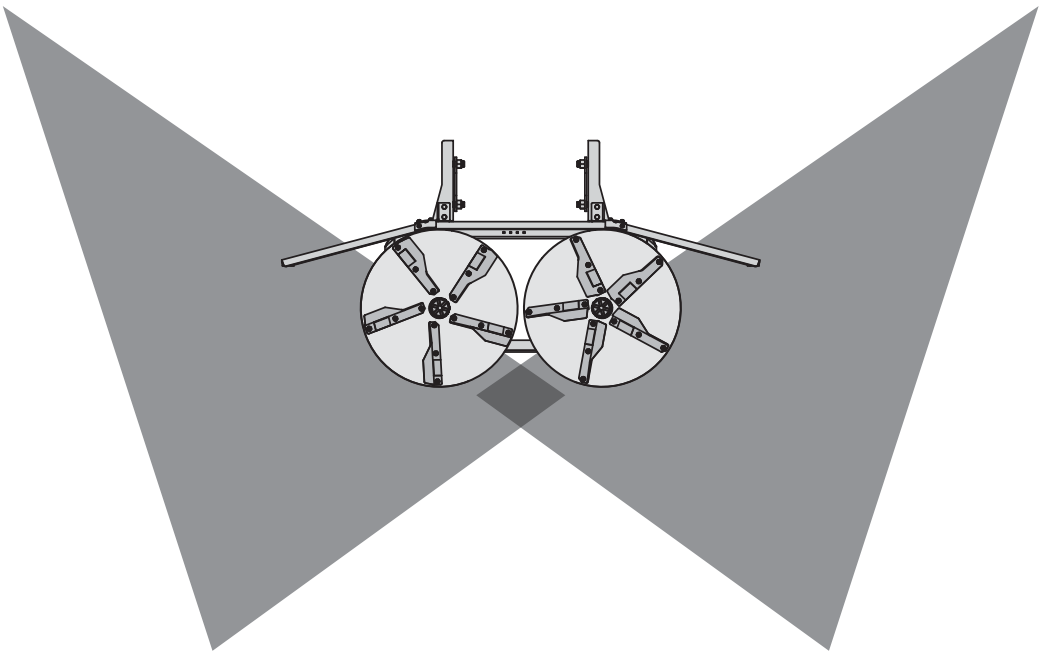


Figure 7.21: Insufficient lime in the centre

▷ **The drop point is moved to the front.**

Excessive lime in the centre:

1. Rotate the adjustment screw [3] by means of an SW 36 spanner in order to move the movable part towards the front [-] in the direction of travel.

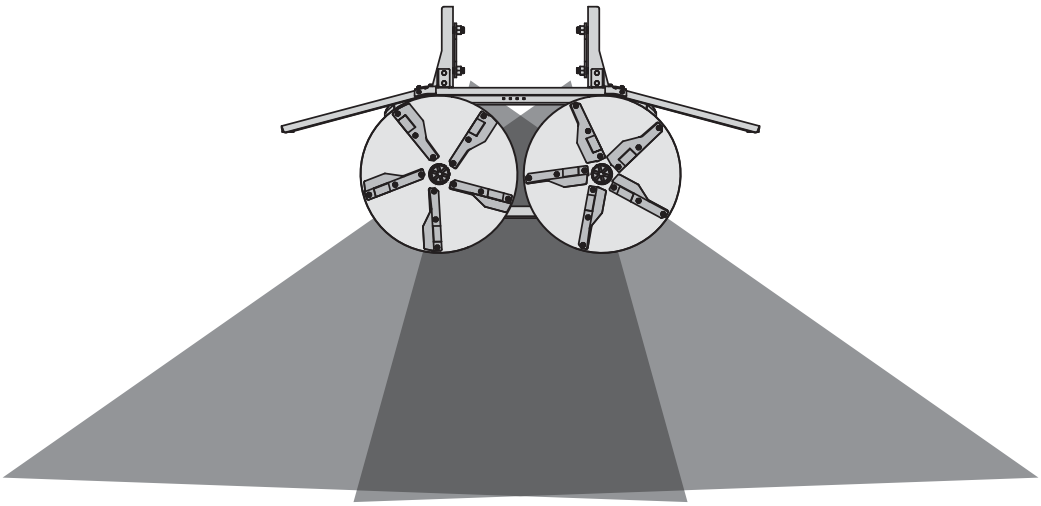


Figure 7.22: Excessive lime in the centre

▷ **The drop point is moved to the rear.**

7.5.3 Setting the machine for lime spreading

The pre-metering slides and the conveyor belt speed depending on the forward speed define the application rate for lime spreading.

1. In the AXENT ISOBUS electronic machine control unit, activate the Lime AUTO km/h operating mode.

NOTICE

The overloading function of the machine in combination with the lime spreading unit is described in the separate operator's manual of the electronic control unit. This operator's manual is an integral part of the AXENT ISOBUS electronic control unit.

2. Settings to be carried out:
   - Working width
   - Application rate
   - Spreading disc type
   - Flow factor

For the settings, refer to the table.

Application rates at 10 km/h and 30 cm pre-metering slide opening

Lime type	Density (kg/m³)	Grinding stage	Dry substance (%)	Working width (m)	Maximum quantity (kg/ha)
Burnt lime, ground	1100	1	100	10	9700
Burnt lime, granulated	1100	-	100	18	5380
Converter lime	1300	2	90	15	7640
Carbonated lime	1000	-	72	12	7340
Mixed lime	1100	2	88	12	8080
Calcium carbonate	1200	2	92	12	8810
Magnesium lime	1200	1	94	10	10580
Black lime	900	1	83	12	6610

3. Start lime operation via the AXENT ISOBUS machine control unit.
   ▷ The conveyor belt starts up.
   ▷ The comb roller is started.

7.6 Discharging residual material

Discharge the machine daily after use. This prevents corrosion and clogging and the properties of the fertiliser and lime are maintained.

7.6.1 Safety notes

⚠ DANGER

Risk of injury due to rotating spreading discs

Working on the large area spreader with the engine running and rotating spreading discs may result in serious injury caused by mechanical components and escaping fertiliser.

- ▶ Prior to discharge of residual material, disassemble the spreading discs.
- ▶ Ensure that nobody is in the hazard zone.

Furthermore, the following requirements must be met:

- The AXENT 100.1 large area spreader is parked on even and solid ground and secured against tilting and rolling.
- During discharge of residual material, the AXENT 100.1 large area spreader is coupled to the tractor.
- Nobody is present in the hazard zone.
- AXIS-PowerPack:
  - The spreading discs are disassembled. See "Removing the spreading discs" on page 92
- LIME-PowerPack: The lime spreading unit is disassembled.

NOTICE

The AXIS-PowerPack fertiliser spreading unit is connected to an electronic control unit. A message indicates that the drop point is temporarily set to drop point position 0 during discharge of residual material.

Please observe the operator’s manual of AXIS-H ISOBUS.

7.6.2 Emptying the large area spreader

Residual material is discharged by opening the pre-metering slides and activating the conveyor belt.

AXIS-PowerPack

1. Position a collection vessel under the AXIS-PowerPack fertiliser spreading unit.
2. The discharge of residual material is started via the AXENT ISOBUS machine control unit.
3. Simultaneously start discharging residual material at the spreading unit via the AXIS-H-ISOBUS machine control unit.
4. Follow the instructions on the screen.
5. After full emptying of the spreading material hopper, clean the machine. Refer to chapter 9.3: Cleaning, page 119

LIME-PowerPack

1. At the end of the field, discharge the lime or return it to the lime deposit.
2. The discharge of residual material is started via the AXENT ISOBUS machine control unit.
3. Move the tractor forward to prevent contact between the lime deposit and the conveyor belt.
4. After full emptying of the spreading material hopper, clean the machine. Refer to chapter 9.3: Cleaning, page 119

7.7 Parking and decoupling the large area spreader

⚠ WARNING

Danger caused by tilting

The AXENT 100.1 large area spreader is a single-axle vehicle. One-sided loading in the rear may lead to tilting of the large area spreader. This may result in personal injury and material damage.

- ▶ Park the large area spreader on even and solid ground.
- ▶ In case of uneven loading of the large area spreader in the rear, **never** decouple it from the tractor.

- Park the empty machine on even ground.

1. Move the entire train on an even, solid parking space.
2. Turn the tractor motor off and remove the ignition key.
3. Clockwise turn the crank handle [1] of the parking brake until it reaches the stopper.
   - ▷ The parking brake is engaged.

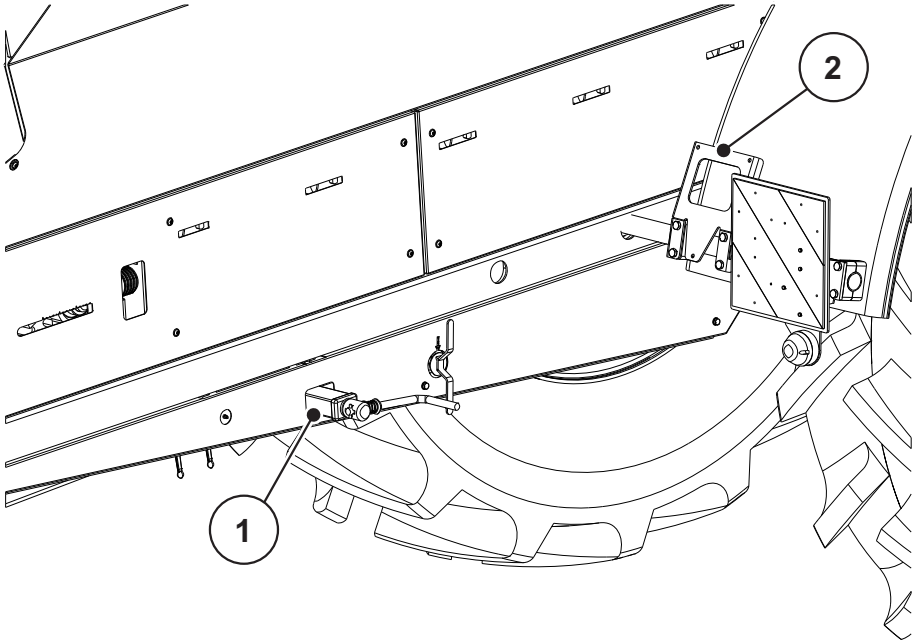


Figure 7.23: Disengaging the manual parking brake

[1] Parking brake
[2] Wheel chock transport bracket

4. Remove the wheel chocks from the transport storage at the mud guard.
5. Press the slider pin [1] and fold out the wheel chocks.

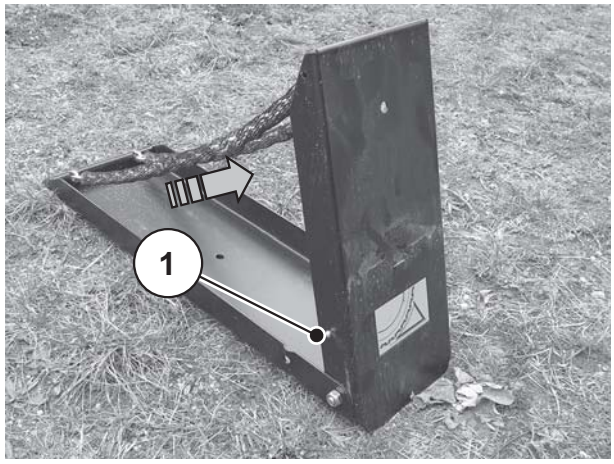


Figure 7.24: Fold out the wheel chock

6. Apply the wheel chocks to both wheels.

Figure 7.25: Positioning the wheel chock

7. Extend the hydraulic support stand.
8. When decoupling the large area spreader, always **decouple first the red coupling head** (supply) and afterwards the **yellow** coupling head of the pneumatic braking system.
9. Disconnect the electrical connections from the tractor.
10. Protect all connectors with dust caps.
11. Disconnect the universal drive shaft from the tractor.
12. De-pressurise the hydraulic system of the tractor (**floating position**).
13. Disconnect the hydraulic connections from the tractor.
14. Disconnect the hydraulic braking system (optional equipment) as follows:

    a) Decouple hydraulic couplings.

    b) Disconnect the release chain of the safety valve from the tractor

15. Decouple the large area spreader from the tractor.

16. Disassemble the steering axle gyroscope (optional equipment) and engage it into the dedicated bracket.

17. Place all cables and hoses at the panel over the towing bar in the dedicated bracket.

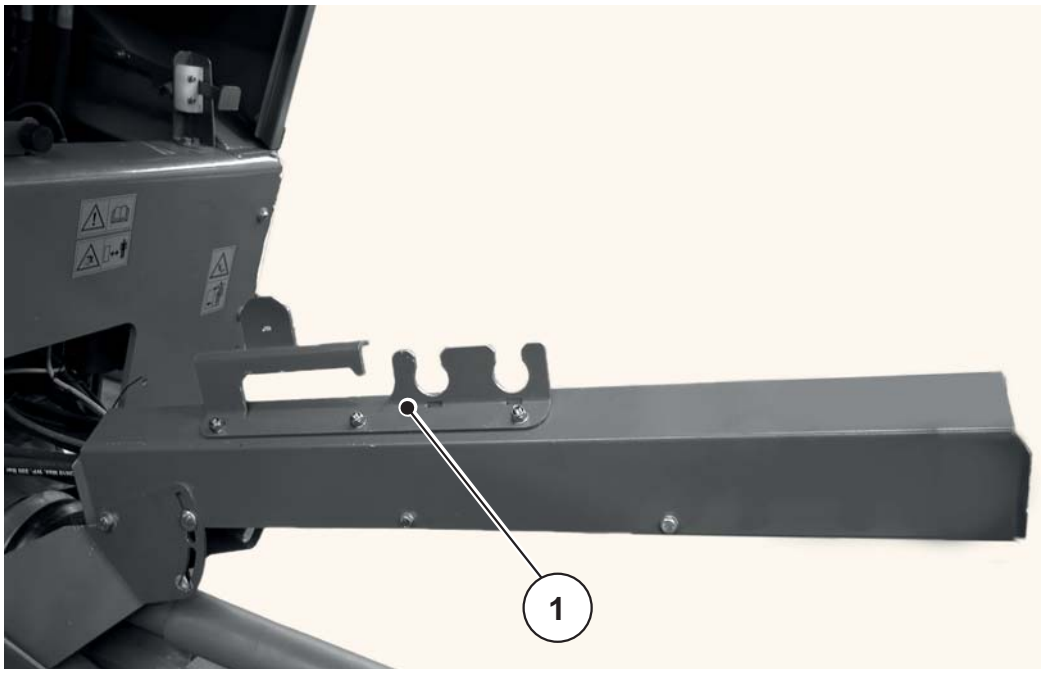


Figure 7.26: Transport bracket for cables, hydraulic hoses and pneumatic lines

[1] Transport plate for hydraulic hoses, electrical cables and for the pneumatic lines for the braking system

▷ **The AXENT 100.1 large area spreader is decoupled and parked.**

8 Faults and possible causes

⚠ WARNING

Risk of injury and accident from omitted or inadequate troubleshooting

Delayed or incorrect repairs by unqualified persons may result in unexpected risks with negative consequences for persons, the machine, and the environment.

- ▶ Any faults occurring must be repaired **immediately**.
- ▶ Repairs may only be carried out by qualified personnel.

Fault	Possible cause	Measure
The conveyor belt does not convey any fertiliser into the hopper of the spreader.	● The universal drive shaft is not connected or switch on. ● The machine control unit is not switched on. ● The AXENT hopper is empty. ● The fertiliser spreader is full. ● The level sensors in AXIS-Power-Pack are contaminated or defective. ● The pre-metering slides are not opened.	● Check all connections. ● Check the functionality of the sensors or clean them.
The conveyor belt conveys insufficient fertiliser.	● The drive shaft speed is set too low. ● The pre-metering slides are not fully opened. ● The consistency of the spreading material is not suitable for spreading with the AXENT large area spreader.	
Slippage at the conveyor belt.	● The tension of the conveyor belt is incorrectly set.	● Re-tension the conveyor belt.

9 General maintenance and service

9.1 Safety

NOTICE

Please note the warnings in chapter 3: Safety, page 5.
Take **particular note of the instructions** in section 3.8: Maintenance and service, page 13.

Maintenance and service involve additional hazards that do not occur during operation of the machine.

Any maintenance and service work is to be conducted with increased alertness at all times. Work very carefully and with awareness of danger.

Observe the following instructions in particular:

- Welding and work on the electrical and hydraulic systems is to be carried out by qualified technicians only.
- Spare parts must at least comply with the technical standards specified by the manufacturer. This is assured e.g. with genuine spare parts.
- Repairs at wheels and tires may only be carried out by qualified personnel with appropriate assembly tools.
- Before starting any cleaning, maintenance, or service work, and when troubleshooting, switch off the tractor's engine and wait until all moving parts of the machine have come to a stop.
- Repairs may only be carried out by instructed and authorised specialists.
- There are two nitrogen tanks in the hydraulic circuit. These also remain under pressure after system shut-down. Slowly and carefully open the screw connections of the hydraulic circuit.

9.2 Maintenance plan

This maintenance plan applies to vehicles with normal load. In case of an extremely high load reduce the maintenance intervals accordingly. This way, damage at the tractor, the large area spreader or the fertiliser spreader is prevented.

NOTICE

For further information, please refer to the operator's manual of the tractor and the fertiliser spreader.

9.2.1 General maintenance plan

Component parts	Maintenance tasks Maintenance plan	Comment
Wear parts and screw connections	Inspect regularly	Page 121
Cleaning	To be carried out after each deployment	Page 119
Towing eye/ball coupling	Check for wear	
Lubrication plan		Page 148

9.2.2 Maintenance plan for axles and braking system

Component parts	Maintenance tasks Maintenance plan	Comment
Brakes	Check function before driving	
	Check condition and function once a year	By specialist workshop
Brake pads	Every 1000 operating hours, at least quarterly: check for wear Install new brake pads, if required	
Air reservoir of braking system	Drain daily	
Wheels	Retighten the wheel nuts after the first 50km	
	After the first 50 operating hours and every 100 hours: Check the bearing clearance of the wheel hubs	
	Check the inflation pressure regularly	

9.2.3 Maintenance plan for hydraulic system

There are two maintenance-free nitrogen tanks for towing bar damping in the hydraulic circuit.

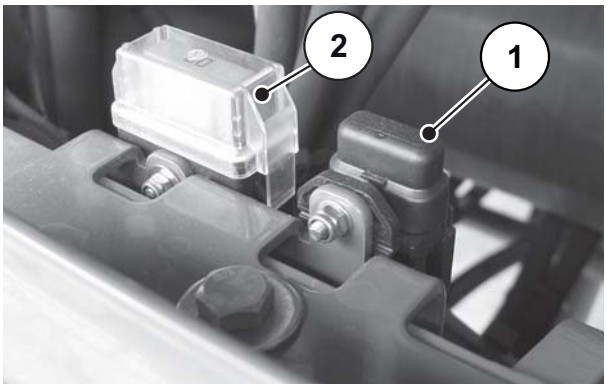
Component parts	Maintenance tasks Maintenance plan	Comment
Nitrogen tank	● Outside inspection at least every 2 years ● Prior to travel, check the nitrogen tank and all connections for damage	
Hydraulic hoses	Check condition	
	Replace after 6 years	Page 138
Control block	Check for damages/leaks before driving	Page 142
Hydraulic hoses	Check condition	
	Replace after 6 years	Page 138

9.2.4 Electrics, electronic system

Electric fuses

The power supply of the machine is fuse-protected via the ISOBUS cable of the tractor.

The RAUCH ISOBUS cable features a **60 Ampere** and a **30 Ampere** fuse for overload protection. The fuses are located behind the maintenance flap.



[1] 30 A fuse
[2] 60 A fuse

Figure 9.1: Fuses at the RAUCH ISOBUS cable

Checking the electric lines

- Visually inspect all electric lines for wear. Check particularly for outside damage or breaks.

Functional check of the lighting system

The machine is factory-equipped with front and rear lighting.

- Check rear lights, brake lights, indicators and position lights for correct function.

Electronic control unit

⚠ WARNING

Risk of injury

The electronic control unit is checked in real time. This means that the machine components immediately executed the selected function.

▶ Ensure that nobody is present in the hazard zone.

Check the following functions of the electronic control unit:

- Conveyor belt start-up
- Pre-metering slide opening
- Check the forward speed sensor
- Checking the filling level sensors

NOTICE

Check the function of the sensors and actuators with the AXENT ISOBUS electronic machine control unit.

- Observe the operator's manual of the AXENT ISOBUS electronic machine control unit.

9.2.5 Oil change intervals

NOTICE

Do not mix different types of oil and do not use any bio-oils.

Component	Oil change intervals	Oil volume	Oil designation
Transmission	● After the first 50 operating hours ● Afterwards, every 500 operating hours	1.5 l	DIVINOL MCL ISO 320 Alternative oil SAE 90
On-board hydraulic Vario-drive	After the first 100 operating hours or at least 1 time per year, oil and oil filter	approx. 65 l	Shell Tellus S2 V68 Alternative oils according to DIN 51524/3 ISO VG-68

NOTICE

Only use one type of oil.

- **Never** mix different oil types.

9.3 Cleaning

Spreading material and dirt promote corrosion.

We recommend cleaning the machine **a soft jet of water** immediately after every use in order to maintain its value.

The following instructions must be observed for cleaning:

- Only clean oiled machines at washing points fitted with an oil separator.
- When cleaning with high-pressure water, **never** aim the jet directly at warning signs, electrical equipment and hydraulic components.

9.3.1 Cleaning the bearings of the guide rollers

During the spreading operation, dust and dirt accumulate at the guide rollers of the conveyor belt.

- Clean the guide rollers. For this purpose, open the side covers.

Below, opening the side cover is described. Proceed respectively for all side covers. On every side of the machine, the guide rollers are covered by 3 side covers.

1. Insert the adjustment lever through the side cover into the sheet metal guide.
2. Lift the adjustment lever.
   ▷ The locking mechanism is disengaged.
   ▷ The side cover is unlocked.

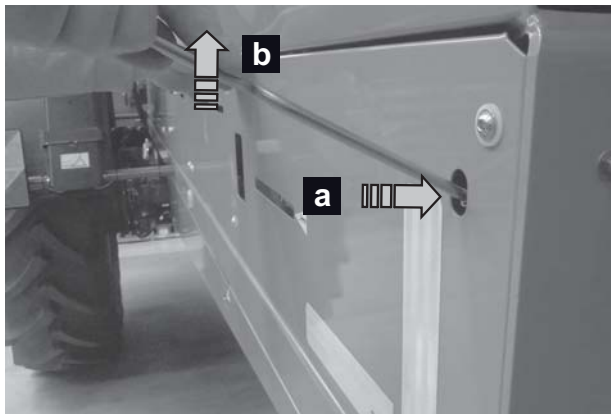


Figure 9.2: Using the adjustment lever

3. Fold open the side cover and remove it.

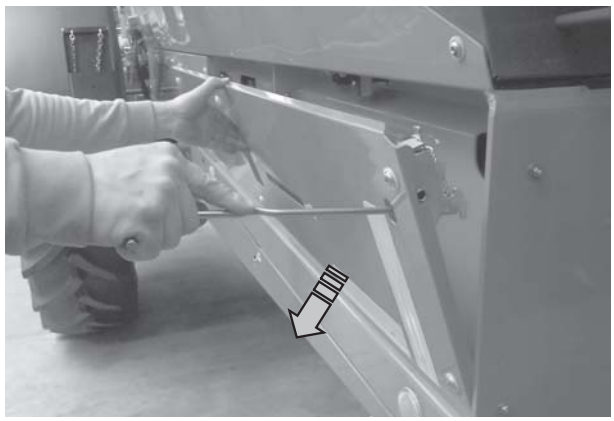


Figure 9.3: Folding open the side cover

4. Clean the guide rollers with a soft jet of water.
5. Place the side cover under the metal catch [1] in the holder [2] of the frame.
6. Close the side cover upwards by hand.
   ▷ The locking mechanism is engaged.

▷ **The side cover is closed and secured.**

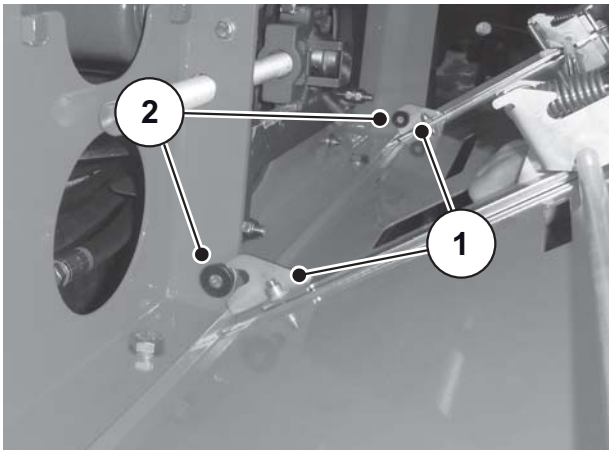


Figure 9.4: Assembling the side cover

9.3.2 Draining of cleaning water

After cleaning, there may still be water in the hopper of the AXENT 100.1 large area spreader.

- Cleaning flap position and lever adjustment: Refer to 3.11.2: Instruction stickers and nameplate, page 24.

7. Open the front maintenance flap in direction of travel.
8. Pull the cleaning flap lever [1].
   ▷ The cleaning flap is opened.
   ▷ Water is drained.

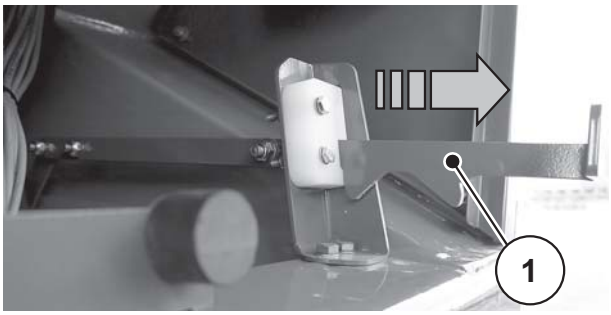


Figure 9.5: Cleaning flap lever

9. Slide in the cleaning flap lever.

▷ **The cleaning flap is closed.**

After cleaning, we recommend treating the **dry** machine, **especially stainless steel parts**, with an environmentally friendly anti-corrosion agent.

A suitable polishing kit can be ordered from authorised dealers for use in treating rust spots.

9.4 Wear parts and screw connections

9.4.1 Checking wear parts

Wear parts include: the cleaner at the AXENT outlet, the belt sealing in the AXENT hopper, the sealing profile at the maintenance flap and all plastic components.

- Checking wear parts.

If visible wear, deformation or holes are identified at these parts, replace them.

The durability of wear parts depends, among other things, on the used spreading material.

- All connection elements between the towed large area spreader and the tractor are also subject to wear. In particular, this applies to the coupling bracket of the ball coupling or the towing eye of the pin coupling.
- We recommend having checked the condition of the towed large area spreader including attachments, the hydraulic system and hoses after each season by a specialist dealer.
- Spare parts must at least comply with the technical standards specified by the manufacturer. This is assured e.g. with genuine spare parts.

9.4.2 Checking the bolted joints

Bolted joints have been tightened to the specified torque and locked at the factory. Vibrations and shocks, in particular during the initial operating hours, can loosen bolted joints.

- With new machines, all screw connections are to be checked for their tight seat after approx. 30 operating hours.
- Check all the bolted joints regularly for tightness, and definitely before the start of the spreading season.

Some components (e.g. spreader vanes) are mounted with self-locking nuts. When mounting these components **always use new self-locking** nuts.

9.5 Recovery of the machine

If the machine cannot be towed by the tractor, proceed as follows to recover the machine from the field.

- Attach a rope around the axle body.

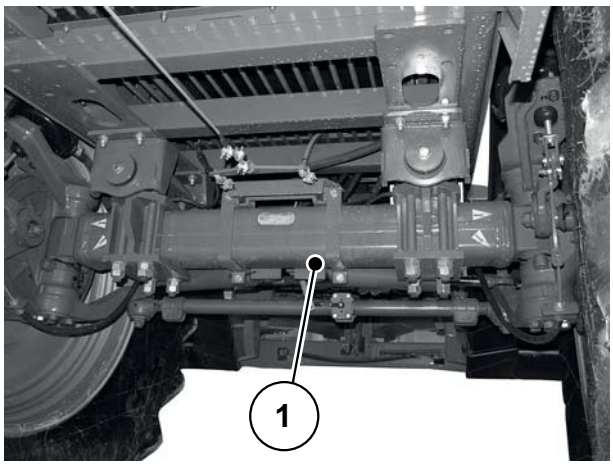


Figure 9.6: Recover the machine with the rope

9.6 Lime spreading unit spreading disc replacement

The LIME-PowerPack lime spreading unit is factory-equipped with **U2** spreading discs. These spreading discs enable lime spreading over a working width of 15 m.

⚠ WARNING

Risk of injury from rotating spreading discs!

Contact with the spreading equipment (spreading discs, spreader vanes) may injure, crush or cut off body parts. Body parts or objects may be caught and pulled in.

▶ Do not remove deflectors mounted on the spreader hopper.

9.6.1 Removing the spreading discs

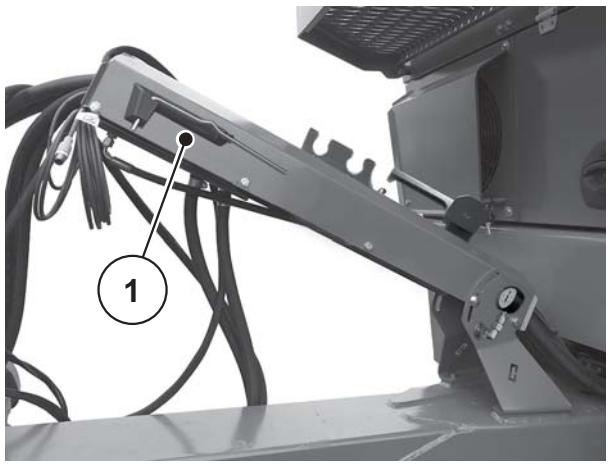
⚠ DANGER

Danger from running motor

Working on the large area spreader with the engine running may result in serious injury caused by mechanical components and escaping fertiliser.

Never remove or mount the spreading discs with the tractor engine running.

▶ Turn the tractor motor off. Remove the ignition key.



[1] Adjustment lever (left in direction of travel, hose bracket)

Figure 9.7: Adjustment lever

Proceed for both sides (left and right) as follows.

⚠ CAUTION

Risk of injury due to heavy spreading discs

The spreading discs of the LIME-PowerPack lime spreading unit have a weight of 25 kg. When handling spreading discs, there is a risk of straining, cutting at body parts or back pain.

- ▶ Proceed carefully when handling spreading discs.
- ▶ Wear gloves at all times.

1. Remove the adjustment lever from the bracket.
2. Release the cap nut [1] of the spreading disc [2] with the adjustment lever.

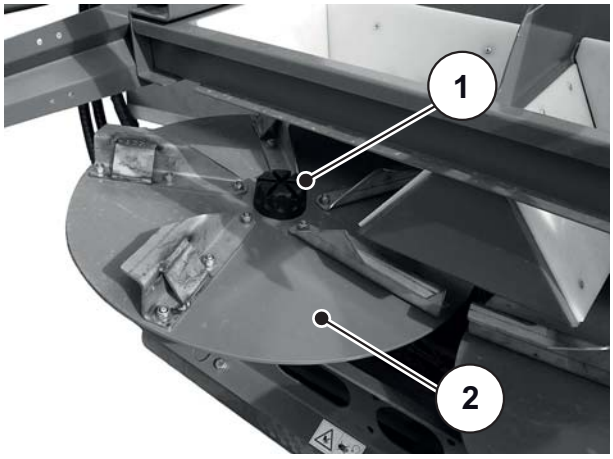


Figure 9.8: Loosen cap nut

3. Unscrew the cap nut.
4. Remove the spreading disc from the hub.
5. Put the adjustment lever back into the specified bracket.

9.6.2 Mounting the spreading discs

Requirements:

- The engine and the AXENT ISOBUS control unit are switched off and locked to prevent accidental starting.

Mount the left spreading disc on the left side in the direction of travel and the right spreading disc on the right side in the direction of travel. The pin for the left spreading disc is located at the top left to the vertical axle of the holder pin.

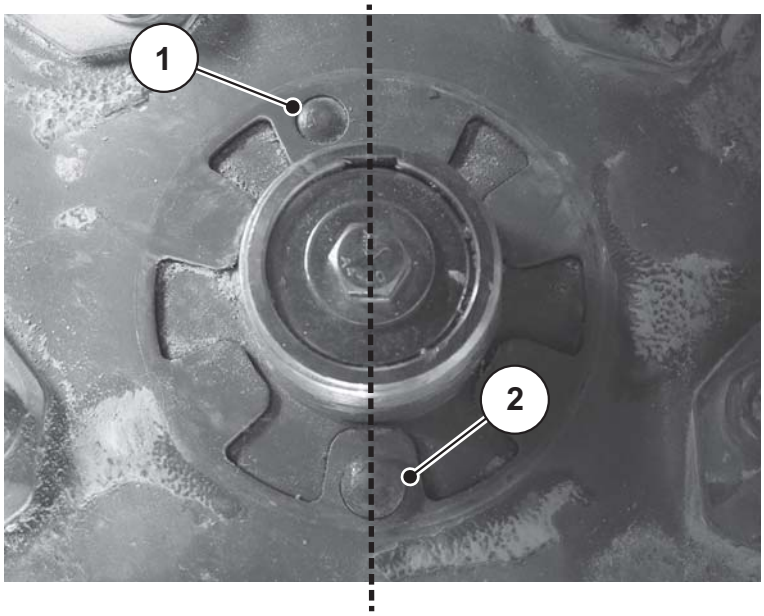


Figure 9.9: Observe the different sides of the spreading discs

[1] Pin for definition of the assembly side of the spreading disc
[2] Holder pin

The following procedure is for mounting the left-hand spreading disc. The right-hand spreading disc is to be mounted according to these instructions as well.

1. Place the left-hand spreading disc on the left-hand spreading disc hub. Make sure that the spreading disc is evenly placed on the hub (remove dirt if necessary).
2. Carefully position the cap nut (do not tilt).
3. Well tighten the cap nut, **not** with the adjustment lever.

NOTICE

The cap nuts have an internal catching mechanism that prevents them from coming loose. The catching mechanism must be noticeable while tightening, otherwise, the cap nut is worn and must be replaced.

4. Check that there is clearance between the spreader vanes and the outlet by turning the spreading discs by hand.

9.7 Adjusting the towing bar suspension

To ensure correct function of the attached spreading unit, the AXENT hopper has to be in a horizontal position independent from the operating conditions.

The towing bar suspension is pre-set at the company and suitable for most application conditions. To prevent accidental incorrect adjustment, both levers of the shut-off valves are disassembled and supplied separately with the machine.

Depending on the properties of the tractor, the height of the coupling points may vary (e.g. small wheels, low coupling points, etc.). For this reason, the position and the spring properties of the towing bar can be adjusted.

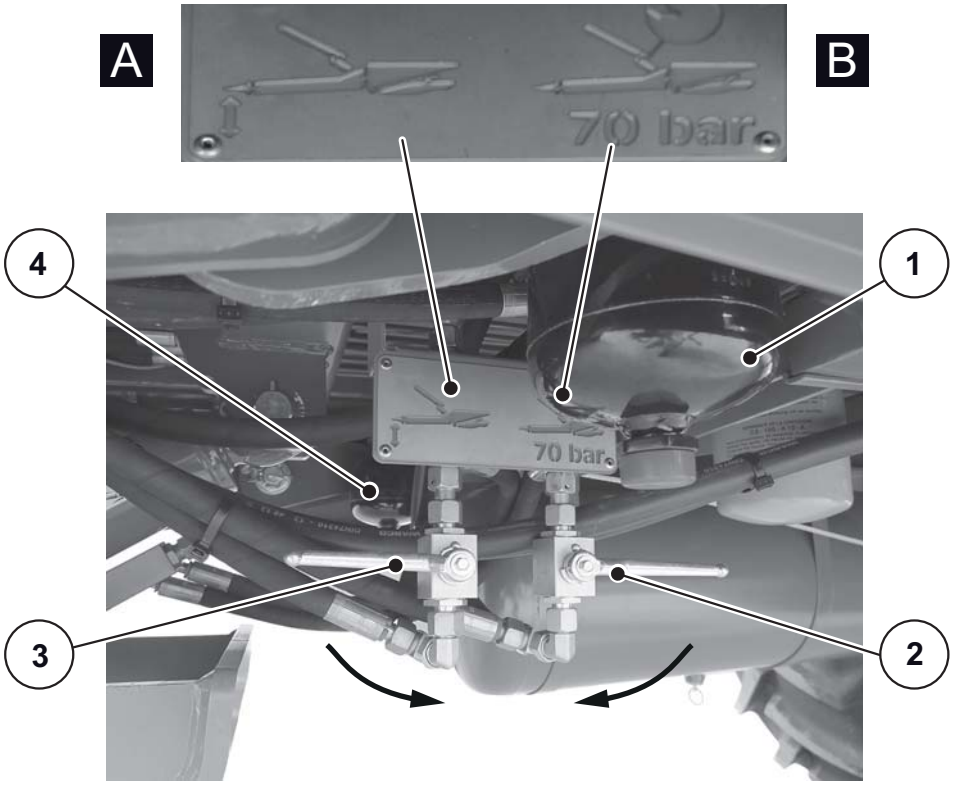


Figure 9.10: Setting the towing bar suspension

[A] Towing bar height adjustment
[B] Pressure spring adjustment
[1] Nitrogen tank at left towing bar spring cylinder
[2] Towing bar damping shut-off valve, closed
[3] Towing bar height shut-off valve, closed
[4] Nitrogen tank at right towing bar spring cylinder

Checking the machine inclination

1. Measure the clearance to the ground at the front [V] and rear [H] bottom edge of the hopper frame.

   In case of a **deviation of more than 40 mm** between both dimensions, adjust the height of the towing bar accordingly.

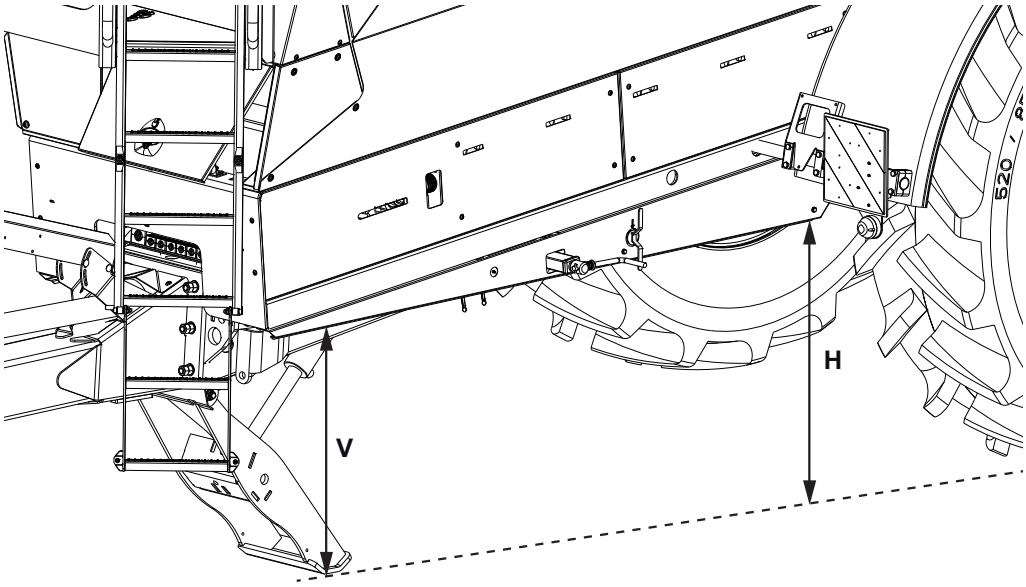


Figure 9.11: Checking the machine inclination

[R] Clearance between hopper frame bottom edge / floor, rear
[F] Clearance between hopper frame bottom edge / floor, front

Setting the towing bar height

2. Assemble levers at the shut-off valves.
3. Open both shut-off valves.
   - ▷ The hydraulic circuit for towing bar suspension and the support stand is open.
   - ▷ The hydraulic circuit of both towing bar cylinders is connected to the hydraulic circuit of the support stand.
4. With the hydraulic control unit of the tractor, retract the support stand until the towing bar cylinders are completely retracted.
5. With the hydraulic control unit of the tractor, extract the support stand until the machine is in horizontal position ([V] = [H]).

6. Close the left shut-off valve.

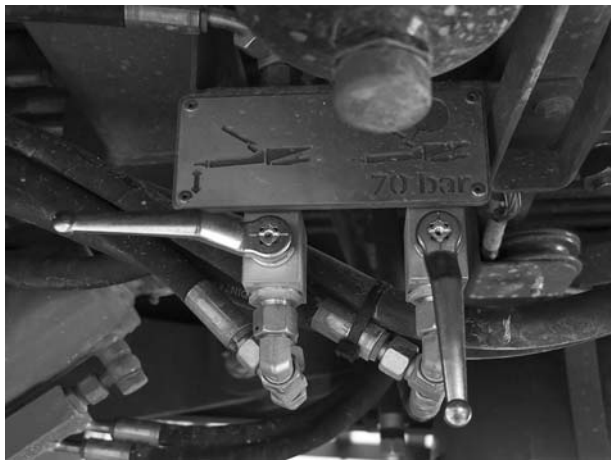


Figure 9.12: Close the left shut-off valve.

7. Check the towing bar suspension cylinder.

   The piston rod has to be extended by 50 mm to 140 mm.

   ▷ 50 mm < x < 140 mm.

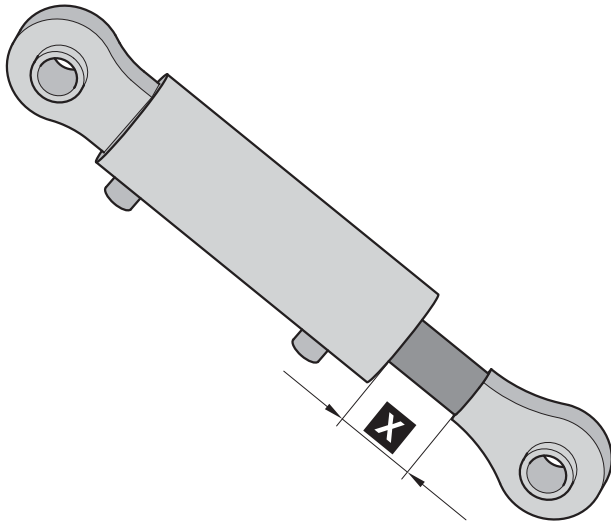


Figure 9.13: Extending the piston rod

▷ **The towing bar height is set.**

NOTICE

If the required towing bar height is not achieved with these settings, please contact your dealer.

Setting the towing bar damping

8. With the hydraulic control unit of the tractor, retract the support stand.
9. Set the pressure to 70 bar.
   ▷ The support stand is retracted.
   ▷ The machine is slightly lowered at the front.

Figure 9.14: Pressure gage at cable guide via towing bar

10. Close the right ball valve.
11. Disassemble both handles of the ball valves and store them in a safe place.

9.8 Setting the conveyor belt

9.8.1 Adjusting the conveyor belt position

For correct distribution of the spreading material in the spreading unit hopper, the conveyor belt has to be centred on its drive rollers.

1. Measure the clearance between the conveyor belt and the hopper walls on both sides.

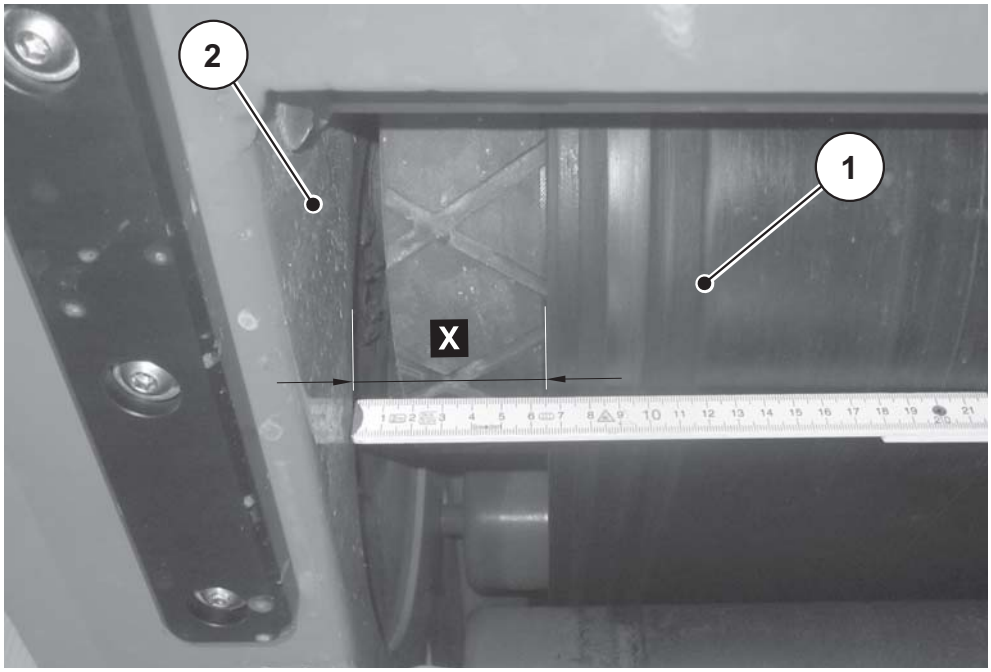


Figure 9.15: Checking the position of the conveyor belt

[1] Conveyor belt
[2] Hopper walls
[X] Measure the clearance between the conveyor belt and the left/right hopper walls

If the deviation between both sides **exceeds 20 mm**, adjust the drive roller.

The bearings of the drive rollers are located in the rear in the direction of travel on each side of the spreading unit coupling points

2. At the side with the larger clearance, untighten the nuts [1] of the drive roller by approx. 2 revolutions.
3. Untighten the adjustment screw with nuts [3] until the clearance is identical on both sides.
4. Re-tighten the nuts [1] and [3].

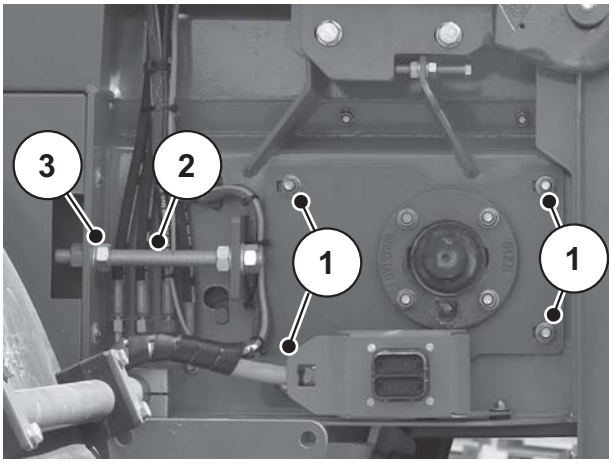


Figure 9.16: Drive roller position

5. Adjust the position of the belt cleaner at the conveyor belt.

   Refer to 9.9: Adjusting the belt cleaner, page 133.

6. Start the conveyor belt via the AXENT ISOBUS machine control unit.
7. Stop the conveyor belt after one minute.
8. Check the position of the conveyor belt at the tension roller and adjust as necessary.

9.8.2 Setting the conveyor belt tension

After the first operating hours or in case of slippage at the conveyor belt, check the tension of the conveyor belt.

The tension rollers of the conveyor belt are located in front in the direction of travel between the hopper and the frame.

1. Check the position of the disc spring assemblies [2] and re-tighten as necessary.

   The disc spring assemblies are flush to the positioning plate [1] on both sides.

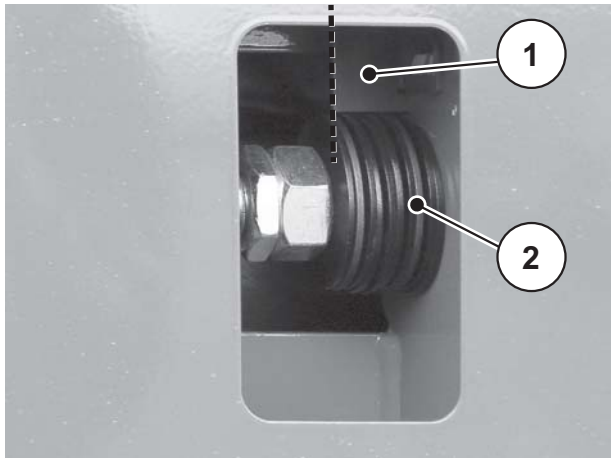


Figure 9.17: Re-tightening the disc spring assemblies

Checking the deflection roller position

The deflection roller has to be positioned in a right angle over the entire length.

2. Check the position of the marking plate [2] on each side.

The marking plate should be in the range of the same marking notch [A] on both sides.

The indentations of the deflection roller should also be identical on each side.

▷ **If the position of the markings deviate, adjust the disc spring assemblies accordingly.**

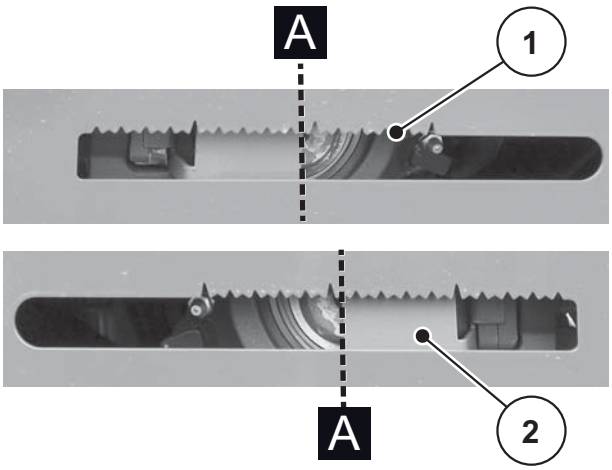


Figure 9.18: Setting the disc spring assemblies

1. Adjust the disc spring assemblies [1] by +/- 2 mm.

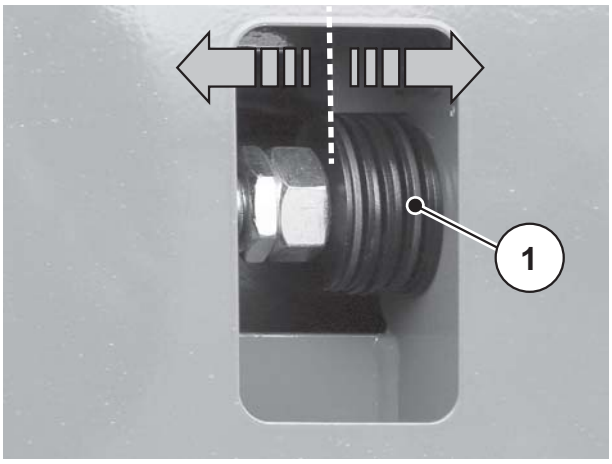


Figure 9.19: Adjusting the disc spring assemblies

9.9 Adjusting the belt cleaner

9.9.1 Disassembling the belt cleaner

1. Loosen the 5 screws [3] of the clamping plate [1].
2. Remove the belt cleaner [2].

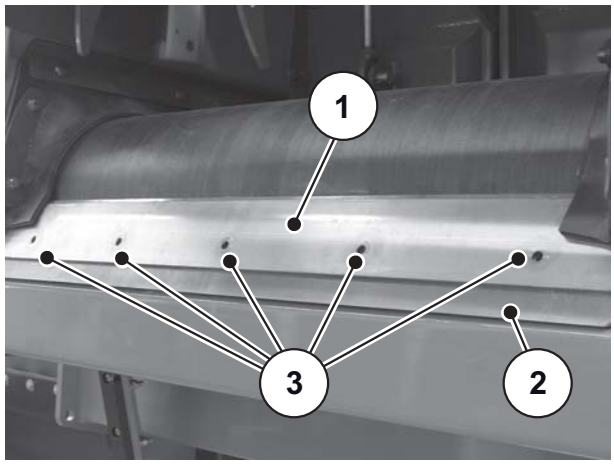


Figure 9.20: Disassembling the clamping plate

9.9.2 Readjusting the belt cleaner bracket

1. Use a 4 mm gage.
2. Check for safe clearance to the conveyor belt.

Figure 9.21: Checking the clearance

3. Loosen the 4 screws [1] under the conveyor belt.
4. Readjust the position of the bracket at the slots.
5. Retighten the screws [1].

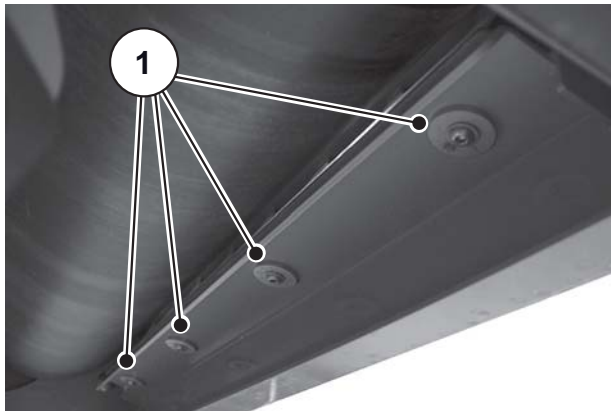


Figure 9.22: Adjusting the position of the bracket

9.9.3 Tightening the belt cleaner

1. Reattach the belt cleaner [1].

   Observe the position of the cleaner.
2. Tighten the clamping plate with the screws at the cleaner.

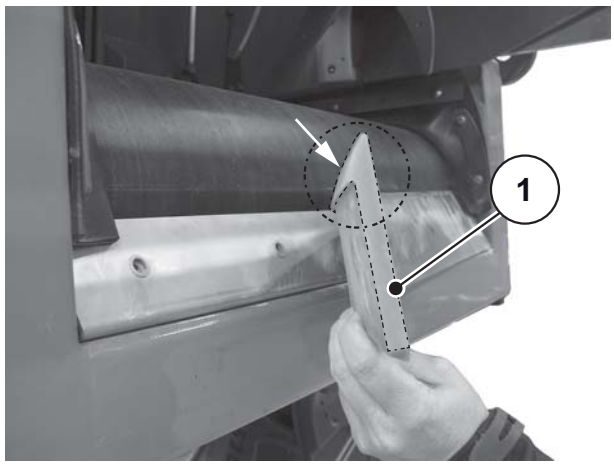


Figure 9.23: Attaching the clamping plate

9.10 Maintenance of chassis and brakes

The machine is braked by a dual-circuit compressed air braking system.

Chassis and brakes are decisive for the operational safety of the large area spreader.

⚠ WARNING

Danger of accidents caused by unprofessionally executed work

Work improperly carried out at the chassis and the braking system compromises the operational safety of the large area spreader and may lead to severe accidents with personal injury and property damages.

▶ Setting and repair work at the brake system may **only** be carried out by specialist workshops or recognized brake services.

9.10.1 Checking the condition and the function of the braking system

NOTICE

As the large area spreader is a transport trailer with spreading unit, it is subject to mandatory cyclical general inspection by a safety-related inspection authority.

You are solely responsible for the flawless condition of your machine.

Proper function of the braking system is essential for the safety of the large area spreader.

Have the braking system checked regularly, at least once a year, by a specialist workshop.

Check the breaking system regularly for damages and leaks, at least before every drive.

When checking the braking system, please respect the following instructions:

- Check the braking system in a dry state, not when the vehicle is wet or in the rain.
- Check the braking system for leaks and damages.
- Check the free movement of the braking lever and the frame.
- Have the brake pads changed in time. For this purpose, only use the brake pads prescribed for the axles.

9.10.2 Draining the air reservoir

Condensation may occur in the pneumatic braking system of the brake circuit and accumulate in the air tank.

In order to avoid corrosion damage to the compressed air braking system, drain the air reservoir daily.

1. Pull the operation pin [1] with a finger.
   ▷ The tilt valve opens.
2. Drain all of the condensed water.
3. Release the actuating pin [1].

▷ **The air reservoir is drained.**

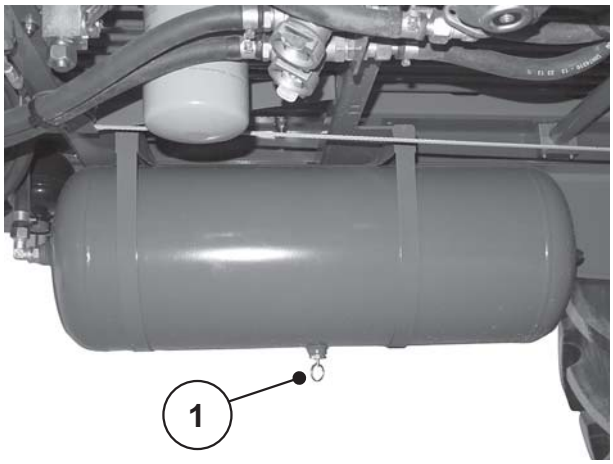


Figure 9.24: Draining the air reservoir

9.11 Maintenance of the hydraulic system

The hydraulic system of the towed large area spreader consists of a hydraulic circuit.

- Control block with oil supply from the on-board axial piston pump.

In operation, the hydraulic system of the large area spreader is under high pressure. During operation, the temperature of the oils in the system is approx. 90 °C.

⚠ WARNING

Risk of injury due to the hydraulic system

Hot fluids and fluids escaping under high pressure may cause severe injury.

- ▶ Before starting any work, the hydraulic system is to be depressurised.
- ▶ Switch off the tractor engine and secure the tractor against restart.
- ▶ Let the hydraulic system cool down.
- ▶ When searching for leakage, wear protective goggles and protective gloves at all times.

⚠ WARNING

Risk of infection caused by hydraulic oils

Hydraulic oils escaping the system under high pressure may penetrate the skin and cause infections.

- ▶ In case of injury in connection with hydraulic oil, immediately seek medical attention!

⚠ CAUTION

Danger of environmental pollution caused by hydraulic or transmission oils

Hydraulic or transmission oil penetrating the canalisation or the ground may pollute large quantities of ground water and drinking water.

- ▶ Always dispose of waste oil in accordance with the manufacturer's instructions, in an environmentally friendly manner at the specified collection point.

9.11.1 Checking hydraulic hoses

Hydraulic hoses are subject to extreme stress and aging. They may only be used for a maximum period of 6 years, including a storage period of up to 2 years.

NOTICE

The date of manufacture of a hose line is indicated at the hose fittings in a year/month format (e.g. 2016/04).

- Regularly check the hydraulic hoses for damage, at the least before the start of the spreading season, by means of visual inspection.
- Replace the hydraulic hoses if one or several of the following damage types are identified:
  - Damages to the external layer up to the inlay
  - Brittleness of the external layer (formation of cracks)
  - Deformation of the hose
  - Hose moves out of the hose fitting
  - Damages to the hose fitting
  - Reduced firmness and function of the hose fitting due to corrosion
- Before the start of the spreading season, check the age of the hydraulic hoses. Change hydraulic hoses as soon as the prescribed period of storage and usage is exceeded.

9.11.2 Replacing hydraulic hoses

Preparation:

- Ensure that the hydraulic system is **depressurised** and **cooled-down**.
- Position collecting vessels for leaking hydraulic oil under the disconnection points.
- Have suitable closing elements ready in order to prevent leaking of the hydraulic oil from the lines which are not to be replaced.
- Have suitable tools ready.
- Put on protective gloves and protective goggles.
- Ensure that the new hydraulic hose corresponds to the type of the hydraulic hose to be replaced. Particular attention is to be paid to the correct pressure range and hose length.

NOTICE

Please also observe deviating maximum pressure specifications of hydraulic lines to be replaced.

Proceed as follows:

1. Loosen the hose fitting at the end of the hydraulic hose to be replaced.
2. Discharge the oil from the hydraulic hose.
3. Loosen the other end of the hydraulic hose.
4. Immediately discharge the loosened hose end into the oil collecting vessel and close the connection.
5. Release hose clamps and disconnect the hydraulic hose.
6. Connect the new hydraulic hose. Tighten the hose fittings.
7. Secure the hydraulic hose with the hose clamps.
8. Check the position of the new hydraulic hose.
   - The hose guide must be identical with the one of the old hydraulic hose.
   - There must be no abrasion points.
   - Do not twist the hose or route it under tension.

▷ **The hydraulic hoses are now successfully replaced.**

9.11.3 Checking the oil level

The oil filling level of the reservoir is to be checked daily.

- Read the filling height at the filling level indicator [1].

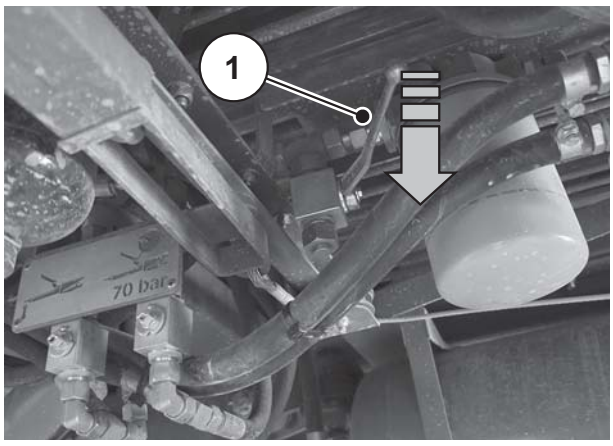
  The oil filling level is acceptable if the oil is between the green and the red mark of the filling level indicator.

Figure 9.25: Oil filling indicator position

9.11.4 Oil change and oil filter replacement

1. Prior to draining the oil, position a sufficiently sized collection vessel (at least 60 l) under the hopper.

   The valve for draining the oil is located under the hopper between the filter cartridge and the towing bar suspension adjustment unit.



2. Open the hydraulic valve [1].
3. Drain any residual oil into the collection vessel.

Figure 9.26: Draining oil

4. Close the hydraulic valve.
5. Disassembling the oil filter at the control block

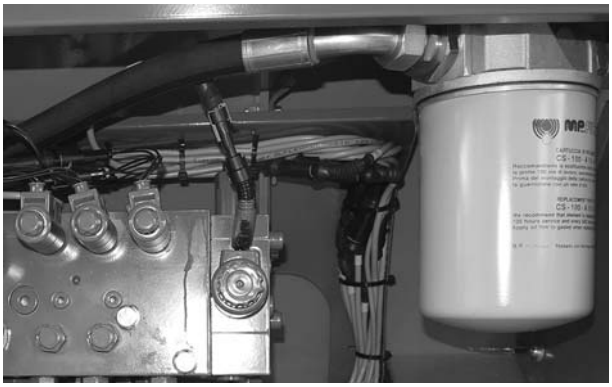


Figure 9.27: Control block oil filter

6. Disassemble the oil filter under the hopper

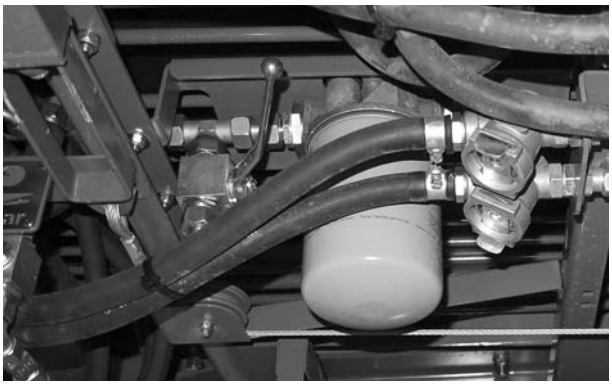


Figure 9.28: Towing bar suspension oil filter

7. Attach the new oil filters.
8. Unfold the steps and climb on the platform.

   Refer to "Operating the steps" on page 74.

⚠ CAUTION

Property damages due to incorrect oil type

The incorrect oil type or a mixture of different oils may lead to material damages to the hydraulic system of the machine and the machine components moved by the hydraulic system.

- ▶ Only use the types of oil specified in this operator's manual.
- ▶ **Do not** mix different types of oil. Always carry out a complete oil change.

By default, the hydraulic system is filled with approx. 60 l of **Shell Tellus S2 V 68** (HV 68 DIN 51524/3 ISO 11158 HV) hydraulic oil.

9. Untighten the filling screw [1].

10. Fill in oil.

The oil level is correct if the filling level indicator is between the maximum and minimum values.

▷ **Oil changed and oil filter successfully replaced.**

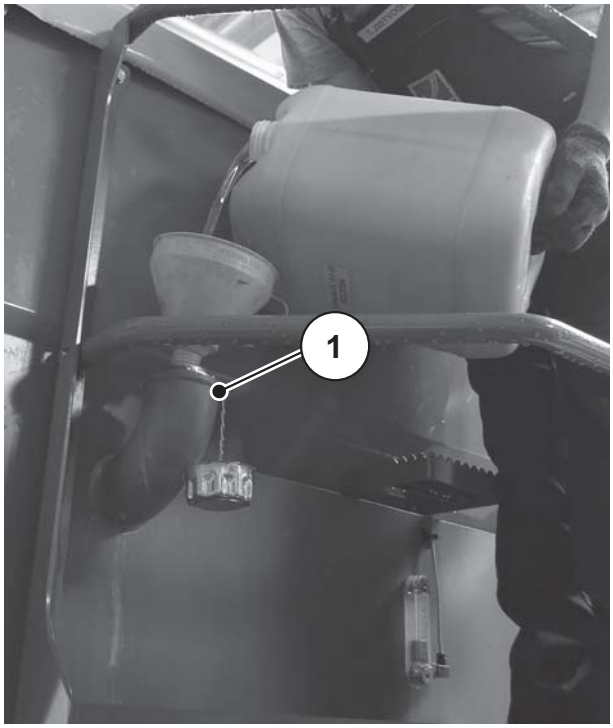


Figure 9.29: Filling in oil

9.11.5 Maintenance of the hydraulic system hydraulic block

Via the control block, all drive and control functions are supplied which are activated by the electronic control unit.

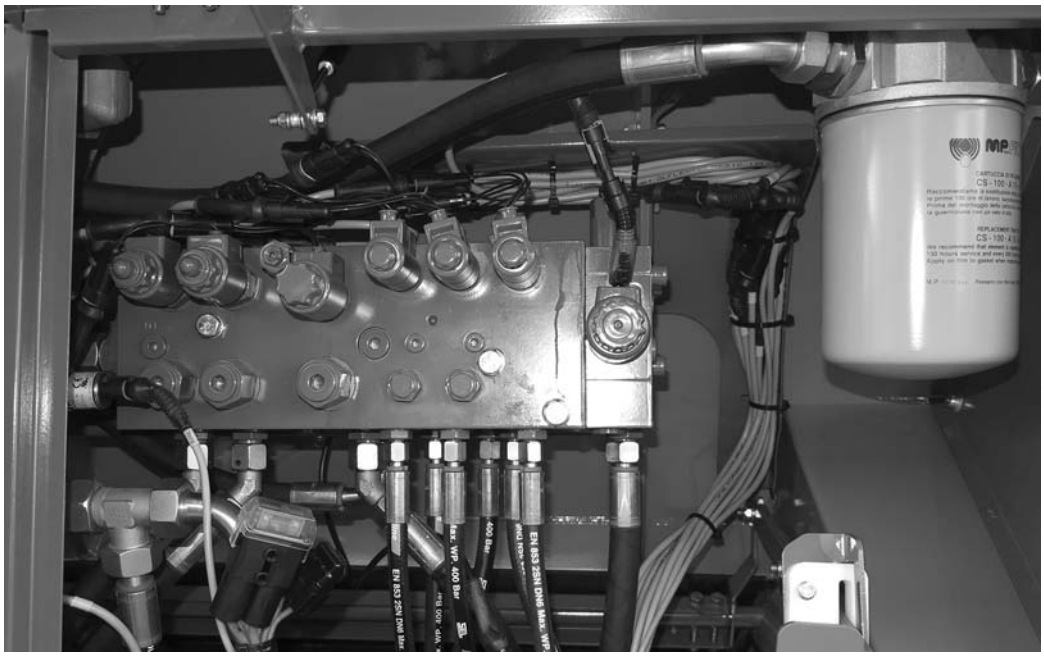


Figure 9.30: Control block

The hydraulic system components to be maintained include:

- The hydraulic cylinders of the pre-metering slides
- The hydraulic motor of the conveyor belt drive
- the hydraulic cylinders for the hopper cover drive.

Checking the hydraulic cylinders for the control function

Regularly check all hydraulic cylinders and at least before every spreading operation.

Control functions: Hydraulic cylinder [1] of pre-metering slides.

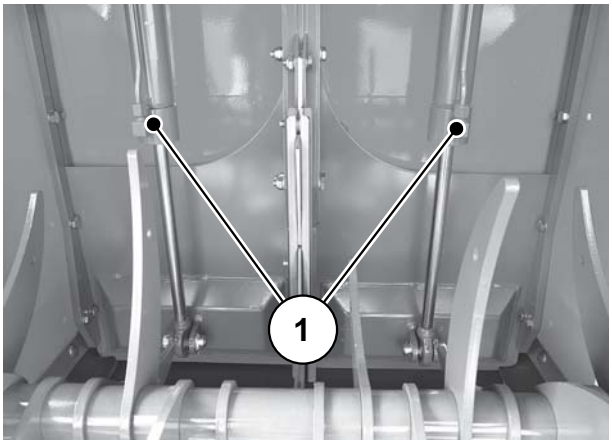


Figure 9.31: Pre-metering slide hydraulic cylinder

Control functions: Hydraulic cylinder [1] for the hopper cover (front and back).

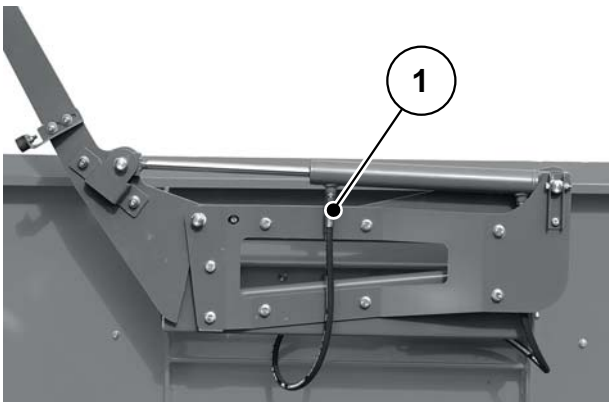


Figure 9.32: Hopper cover hydraulic cylinder

- Check the components for external damages and leaks.

Checking other components

- Regularly check the **motor** of the conveyor belt, however, at least prior to every spreading operation.
- Check the components for external damages and leaks.

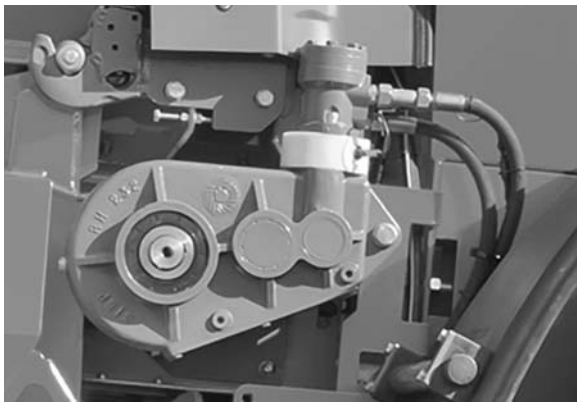


Figure 9.33: Checking the conveyor belt motor

9.12 Wheels and tyres

The condition of the wheels and tyres is crucial for the operational safety of the AXENT 100.1 large area spreader.

⚠ WARNING

Danger of accidents caused by unprofessionally executed work

Work improperly carried out at the wheels and tires compromises the operational safety of the large area spreader and may lead to severe accidents with personal injury and property damages.

- ▶ Repairs at wheels and tires may **only be carried out by qualified personnel** with appropriate assembly tools.
- ▶ **Never** weld cracked wheel rims or discs. Due to the dynamic stress when driving, the welds would tear within a short period of time.

9.12.1 Checking the tyres

Regularly check the tyres for wear, damages and ingress of foreign objects.

Every two weeks, check the inflation pressure of the **cold** tyre. Observe the manufacturer's instructions.

9.12.2 Checking the condition of the wheels

Regularly check the wheels for deformation, corrosion, cracks and fractures.

- Corrosion may lead to stress cracks on wheels as well as damages to the tyres. The contact surfaces to the tyre and the wheel hub are to be kept stainless.
- Replace cracked, deformed or otherwise damaged wheels.
- Replace wheels with cracked or deformed bolt openings.

9.12.3 Replacing wheels

⚠ WARNING

Danger of accidents caused by unprofessionally executed wheel replacement

Improper change of wheels at the large area spreader may lead to severe accidents and personal injury.

- ▶ Change wheels only if the large area spreader is empty and coupled to the tractor.
- ▶ For wheel change, the large area spreader has to be parked on even and solid ground.

Requirements:

- Use a jack which is able to lift a load of at least **5 tons**.
- Use a torque wrench for tightening the wheel nuts.

Positioning of the jack:

- Position the jack in a way that the contact surface cannot be displaced under any circumstances (e.g. by a suitable piece of wood or rubber block).
- Additionally secure the jack against sliding away.
- For a wheel change on the right side in direction of travel, position the lifting jack on the right [1] under the axle attachment.
- For a wheel change on the left side in direction of travel, position the lifting jack on the left [2] under the axle at the height of the spring link.

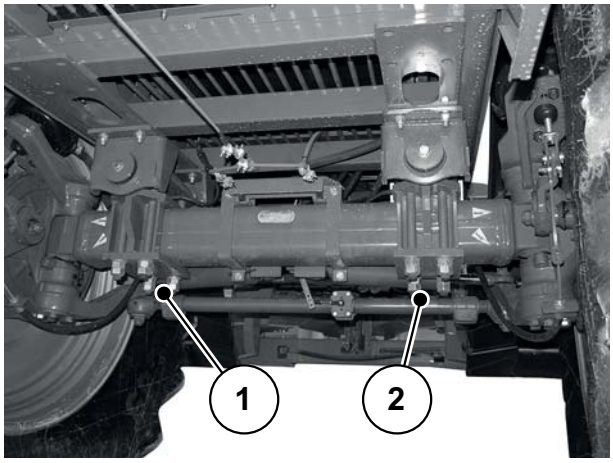


Figure 9.34: Application points for jack

Wheel mounting:

- Before mounting the wheel, clean its contact surface to the hub.
- Before mounting, check the wheel nuts and bolts. Replace damaged, stuck or corroded wheel nuts or bolts.
- Tighten all wheel nuts **gradually** and **diagonally** using a torque wrench.
  - Tighten the wheel nuts with a tightening torque of **560 Nm**.
  - Attach and tighten all **10** wheel nuts per wheel.

Due to setting, the wheel nuts become lose during the first kilometres of travel of new large area spreaders or after wheel change.

- Tighten all wheel nuts after driving **50 km** with the prescribed tightening torque.

NOTICE

Observe the instructions and prescribed activities regarding the wheel mounting of the axle manufacturer.

9.13 Lubrication plan

Lubrication interval: every 50 operating hours, under extreme spreading conditions less.

9.13.1 AXENT basic machine lubrication points

The lubrication points are distributed over the entire machine and marked correspondingly.

You can recognize the lubrication points pots with this sign:

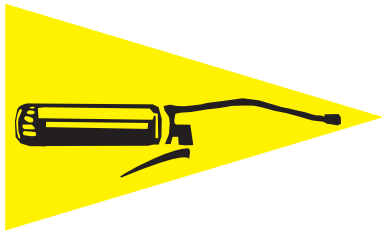
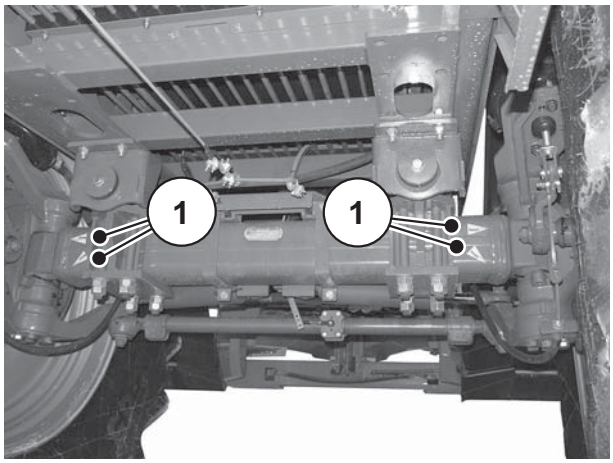


Figure 9.35: Lubrication point sign

- Always keep the signs **clean** and **legible**.

[1] Ball coupling lubrication point

Figure 9.36: Ball coupling



[1] Brake linkage lubrication point

Figure 9.37: Brake linkage

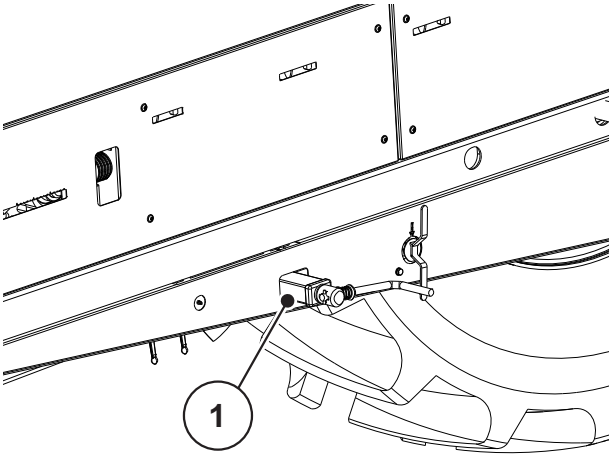
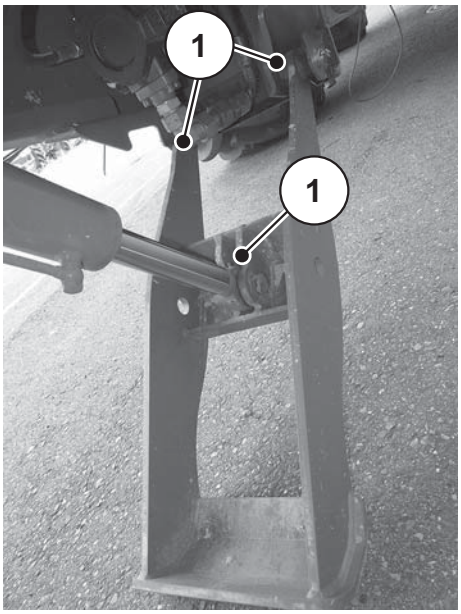
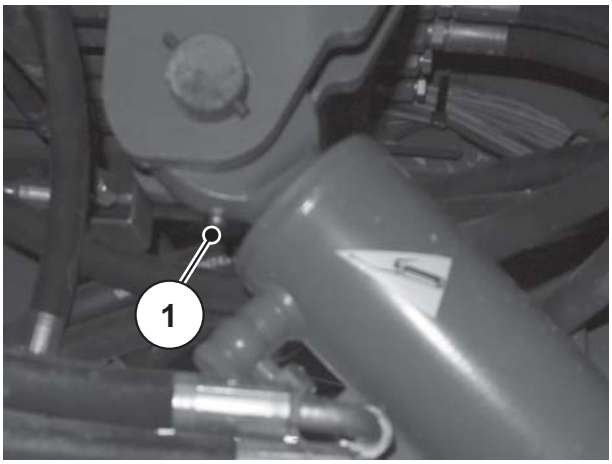


Figure 9.38: Parking brake



[1] Support stand lubrication point

Figure 9.39: support stand



[1] Lubrication point

Figure 9.40: Support stand hydraulic cylinder

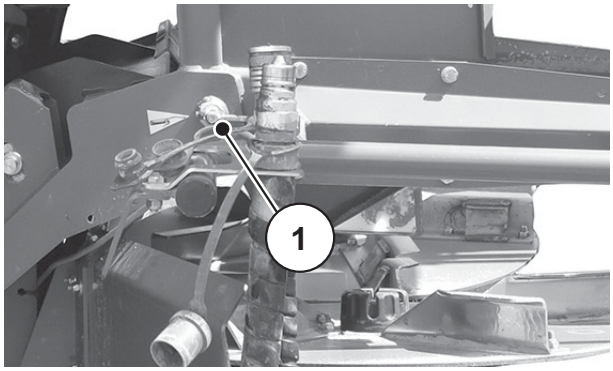
[1] Deflection roller lubrication point

Figure 9.41: Belt drive

[1] Towing bar lubrication points

Figure 9.42: Towing bar

9.13.2 LIME-PowerPack lime spreading unit lubrication points



[1] Hopper lubrication point

Figure 9.43: Lime spreader lubrication point

10 Disposal

10.1 Safety

⚠ WARNING

Environmental pollution due to unsuitable disposal of hydraulic and gear oil

The hydraulic and gearbox oils are not entirely biodegradable. Therefore, oil must be prevented from entering the environment in an uncontrolled manner.

- ▶ Collect/dam escaped oil with sand, earth or other absorptive material.
- ▶ Collect hydraulic and gear oil in a suitable container provided for the purpose, and dispose of it in accordance with the local statutory requirements.
- ▶ Oil must be prevented from spilling and draining into the sewers.
- ▶ The ingress of oil into the sewage system must be prevented by building dams made of sand and/or earth or by other suitable damming means.

⚠ WARNING

Environmental pollution caused by inappropriate disposal of packaging materials

Packaging material contains chemical compounds, which must be dealt with appropriately.

- ▶ Packaging material is to be disposed of at an authorized waste management company.
- ▶ Observe the national regulations.
- ▶ Packaging material may **not** be burned nor disposed of with the domestic waste processing.

⚠ WARNING

Environmental pollution caused by inappropriate disposal of components

The incorrect disposal of ingredients and materials is a threat to the environment.

- ▶ Only authorised companies may be commissioned with the disposal.

10.2 Disposal

The following points are applicable without any restriction. Stipulate suitable precautionary measures based on the national legislation and implement them.

1. All components, auxiliary and operating materials from the machine must be removed by specialist staff.

   Hereby, these components and substances must be cleanly separated into categories.

2. All waste products are then to be disposed of in accordance with local regulations and directives for recycling or special refuse categories by authorised companies.

Index

Terms/conditions of warranty

RAUCH units are manufactured with modern production methods and with the greatest care and are subject to numerous inspections.

Therefore RAUCH offers a 12-month warranty subject to the following conditions:

- The warranty begins on the date of purchase.
- The warranty covers material and manufacturing faults. Our liability for third-party products (hydraulic system, electronics) is limited to the warranty of the manufacturer of the equipment. During the warranty period, manufacturing and material faults are corrected free of charge by replacement or repair of the affected parts. Other rights extending beyond the above, such as claims for conversion, reduction or replacement for damages that did not occur in the object of supply are explicitly excluded. Warranty services are provided by authorised workshops, by RAUCH factory representatives or the factory.
- The following are excluded from coverage by the warranty: natural wear, dirt, corrosion and all faults caused by improper handing and external causes. The warranty is rendered void if the owner carries out repairs or modifications to the original state of the supplied product. Warranty claims are rendered void if RAUCH original spare parts were not used. Therefore, the directions in the operating manual must be observed. In all cases of doubt contact our sales representatives or the factory directly. Warranty claims must be submitted to the factory by 30 days at the latest after occurrence of the problem. The date of purchase and the serial number must be indicated. If repairs under the warranty are required, they must be carried out by the authorised workshop only after consultation with RAUCH or the company's appointed representatives. The warranty period is not extended by work carried out under warranty. Shipping faults are not factory faults and therefore are not part of the warranty obligation of the manufacturer.
- No claims for compensation for damages that are not part of RAUCH machines themselves will be accepted. This also means that no liability will be accepted for damage resulting from spreading errors. Unauthorised modifications of RAUCH machines may result in consequential damage, for which the manufacturer will not accept any liability. The manufacturer's liability exclusion will not apply in case of wilful intent or gross negligence by the owner or a senior employee, and in cases where – according to the product liability law – there is liability for personal injury or material damage to privately used objects in the event of defects in the supplied product. It will also not apply in the event that assured properties are absent, if the purpose of the assured properties was to protect the purchaser against damage that does not involve the supplied product itself.

RAUCH Streutabellen
RAUCH Fertilizer Chart
Tableaux d'épandage RAUCH
Tabele wysiewu RAUCH
RAUCH Strooitabellen
RAUCH Tabella di spargimento
RAUCH Spredetabellen
RAUCH Levitystaulukot
RAUCH Spridningstabellen
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